DADF-G1

SERVICE MANUAL

REVISION 0

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Canon

OCT. 2000 **FY8-13GK-000**

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Scope of Application

This document is published by Canon Inc. for the purpose of providing individuals with the technical knowledge needed to install, maintain, and repair the product under discussion. It may also be used as a reference when studying the technical aspects of the product.

The contents of this document are generic in nature so as to cover all areas where the product is sold. In this respect, it is important to note that some of the specifications or descriptions found in this documentation may not apply in some areas.

In addition, it must be borne in mind that the specifications or descriptions may differ from those noted in the actual machine or found in advertisements or in other printed matter.

All questions concerning this document are to be addressed to the Service Department of the appropriate Sales Company.

Revision

The information disclosed in this document may not necessarily be accurate because of updates made to the product, and major differences will be communicated in the form of technical bulletins. The following will not apply where it does not conform to the laws or regulations of the country in which the product is used.

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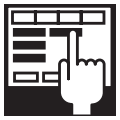
Warning

This document must be handled with utmost care. Disclosure of its contents may lead to legal proceedings.

1 Symbols Used

This documentation uses the following symbols to indicate special information:

Symbol	Description
	Indicates an item of a non-specific nature, possibly classified as Note, Caution, or Warning.
	Indicates an item requiring care to avoid electric shocks.
	Indicates an item requiring care to avoid combustion (fire).
	Indicates an item prohibiting disassembly to avoid electric shocks or problems.
	Indicates an item requiring disconnection of the power plug from the electric outlet.
	Indicates an item intended to provide notes assisting the understanding of the topic in question.
	Indicates an item of reference assisting the understanding of the topic in question.
	Provides a description of a service mode.
	Provides a description of the nature of an error indication.
	Refers to the Copier Basics Series for a better understanding of the contents.

2 Outline of the Sevice Manual

This Service Manual contains basic information needed to service the DADF-G1 in the field, conducted for the purpose of maintaining its product quality and a specific level of performance.

This Service Manual consists of the following chapters:

Chapter 1 *General Description* shows the features and specifications of the machine, as well as the names of parts and how to operate it.

Chapter 2 *Operation and Timing* explains the mechanical and electrical systems of the machine by function in relation to the principles of operation and timing at which they are driven.

Chapter 3 *Mechanical Systems* shows how to disassemble/assemble the machine and make adjustments.

Chapter 4 *Maintenance and Inspection* provides tables of periodically replaced parts and consumables/durables and a scheduled servicing chart.

Chapter 5 *Troubleshooting* shows standards to follow and adjustments to make, and provides troubleshooting tables.

Appendix added to offer a general timing chart and PCB diagrams.

The machine comes with an Installation Procedure. Refer to the instructions in the booklet when installing the machine.

The descriptions of the machine are subject to change for product improvement, and major changes will be communicated in the form of Service Information bulletins.

All service persons are expected to be fully familiar with the contents of this Service Manual and Service Information bulletins to develop a good understanding of the machine, equipping themselves with the ability and skill to identify faults and to maintain the machine in good order.

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Contents

CHAPTER 1 GENERAL DESCRIPTION

1 Features 1-1
1.1 Identifying the Size of Originals 1-1
2 Specifications 1-2
3 Names of Parts 1-4
3.1 External View 1-4
3.2 Cross Section 1-4
4 Operating the Machine 1-5
4.1 Original Set Indicator 1-5
4.2 Warnings and Actions to Take 1-6
4.3 Routine Maintenance by the User 1-6
4.3.1 Copyboard glass 1-6
4.3.2 Feed Belt 1-6
4.3.3 Others 1-6
4.3.4 Separation Belt and Feed Roller 1-6

CHAPTER 2 OPERATIONS AND TIMING

1 Basic Construction 2-1
1.1 Outline of the Electrical Circuitry 2-1
1.2 Communication with the Host copier 2-2
1.3 Inputs to the DADF Controller PCB 2-3
1.3.1 Inputs to the DADF Controller PCB (1/2) 2-3
1.3.2 Inputs to the DADF Controller PCB (2/2) 2-4
1.4 Outputs from the DADF Controller PCB 2-5
1.4.1 Outputs from the DADF Controller PCB (1/1) 2-5
2 Basic Operations 2-6
2.1 Outline 2-6
2.2 Operations 2-7
2.2.1 Single-Sided Original Mode 2-7
2.2.2 Double-Sided Original Mode 2-8
2.3 Detecting Originals 2-9
2.3.1 Outline 2-9
2.3.2 Detecting the Presence/Absence of an Original 2-10
2.3.3 Detecting the Size of Originals 2-10
2.3.4 Detecting the Trailing Edge of the Last Original 2-14
2.4 Picking Up Originals 2-15
2.4.1 Outline 2-15
2.4.2 Pickup Operation 2-15
2.5 Reversing Originals 2-19
2.5.1 Operations 2-19
2.5.2 Sequence of Operations (reversal) 2-20
2.6 Delivery 2-21
2.6.1 Outline 2-21
2.6.2 Delivery Operations 2-22
2.7 Controlling the Pickup Motor 2-25
2.7.1 Outline 2-25
2.7.2 Relationship Between the Pickup Roller and the Pickup Motor Drive Signal (SMON), Pickup Motor Rotation Direction Signal (SDIR), and Pickup Motor Rotation Speed Control Signal (SMPWM) 2-26
2.8 Controlling the Belt Motor 2-27

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2.8.1 Outline 2-27
2.8.2 Relationship Between the Feed Belt and the Belt Motor Drive Signal (BMON), Belt Motor Rotation Direction Signal (BDIR), and Belt Motor Rotation Speed Control Signal (BMPWM) 2-28
2.8.3 Protecting the Belt Motor from Overcurrent 2-28
2.9 Detecting a Jam 2-29
2.10 Improperly Placed Original 2-32
2.10.1 Resetting 2-34
3 Power Supply 2-35
3.1 Outline 2-35

CHAPTER 3 MECHANICAL SYSTEMS

1 Basic Construction 3-1
1.1 External Covers 3-1
1.1.1 Detaching the DADF 3-1
1.1.2 Removing the Covers 3-3
1.1.3 Side Guide Lock 3-5
1.2 Switches 3-6
1.2.1 Adjusting the DADF Switch (MS) 3-6
1.2.2 Upper Cover Switch (MS2) 3-6
1.2.3 Mounting the Original Width Detecting Volume 3-7
1.3 Adjusting the Height of the Machine 3-9
2 Drive System 3-10
2.1 Removing the Pickup Motor Unit 3-10
2.2 Removing the Feed Motor Unit 3-11
2.3 Belt Motor Unit 3-13
2.3.1 Removal 3-13
2.3.2 Making Adjustments ... 3-15
2.4 Removing the Clutch Unit .. 3-16
3 Feed System 3-18
3.1 Pickup Roller Unit 3-18
3.2 Pickup Roller 3-21
3.3 Separation Belt Unit 3-22
3.4 Feed Roller Unit 3-23
3.5 Registration Roller 3-26
3.6 Delivery /Reversing Roller .. 3-31
3.7 Delivery Roller Unit 3-36
3.8 Reversing Guide 3-37
3.9 Stopper Plate Solenoid 3-40
3.9.1 Removal 3-40
3.9.2 Making Adjustments 3-41
3.10 Adjusting the Position of the Paper Deflecting Plate Solenoid (SL3) 3-41
3.11 Feed Belt 3-42
4 Cleaning 3-45
4.1 Belt Assembly 3-45
4.2 Sensors 3-46
4.2.1 Cleaning the Original Sensor (S1) 3-46
4.2.2 Original Sensor Reflecting Segment 3-47
4.2.3 Registration Sensor (S3) 3-47
4.2.4 Registration Sensor LED3 3-48
4.3 Separation Flapper 3-49
4.4 Separation Front Guide 3-50
5 Lubricating 3-51
5.1 Pickup Drive Assembly 3-51
5.1.1 Rear 3-51
5.1.2 Front 3-51

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CHAPTER 4 MAINTENANCE AND INSPECTION

1 Periodically Replaced Parts 4-1
2 Consumables and Durables 4-1
3 Scheduled Servicing 4-2

CHAPTER 5 TROUBLESHOOTING

1 Standards and Adjustments 5-1
1.1 Mechanical 5-1
1.1.1 Adjusting the Height of the Machine 5-1
1.1.2 Adjusting the Original Stop Position 5-1
1.1.3 Adjusting the DADF Open/Close Switch (MS1) 5-9
1.1.4 Adjusting the Separation Belt Pressure 5-10
1.2 Electrical 5-15
1.2.1 After Replacing Major Parts 5-15
1.2.2 Adjusting the Level of the Original Tray Paper Sensor (S1)/Registration Sensor (S3) 5-15
1.2.3 Adjusting the Original Width Detecting Volume (VR1) 5-17
1.2.4 Pickup Operation Initial Settings 5-19
2 Troubleshooting 5-20
2.1 Troubleshooting Procedure 5-20
2.1.1 E400/E712 Indicator ... 5-20
2.1.2 E401 Indicator 5-20
2.1.3 E402 Indicator 5-21
2.1.4 E403 Indicator 5-21
2.1.5 E411 Indicator 5-22
2.1.6 E712 Indicator 5-23
3 Arrangement of Electrical Parts . 5-24
3.1 Motors, Solenoids, and Sensors 5-24
3.2 PCBs 5-26
4 Variable Resistors (VR), Light-Emitting Diodes, and Check Pins by PCB 5-27
4.1 DADF Controller PCB 5-27
4.2 Indicator PCB 5-29
4.3 Functions of the DIP Switch 5-30
5 Self Diagnosis 5-32
5.1 DADF Self Diagnosis 5-32

APPENDIX

1 General Timing Chart A-1
1.1 Top Pickup Mode, A4, 2 Originals (single-sided original to single-sided copy) A-1
2 List of Signals/Abbreviations A-2
3 General Circuit Diagram A-3
4 DADF Controller Circuit Diagram A-4
4.1 DADF Controller Circuit Diagram (1/6) A-4
4.2 DADF Controller Circuit Diagram (2/6) A-5
4.3 DADF Controller Circuit Diagram (3/6) A-6
4.4 DADF Controller Circuit Diagram (4/6) A-7

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4.5 DADF Controller Circuit Diagram (5/6) A-8
4.6 DADF Controller Circuit Diagram (6/6) A-9
5 Indicator PCB Circuit Diagram A-11
6 List of Special Tools A-12
7 List of Solvents/Lubricants A-13

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CHAPTER 1

GENERAL DESCRIPTION

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1 Features

1.1 Identifying the Size of Originals

The machine checks the length (feed direction) and the width of an original to find out its size and communicate the result to the host copier.

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2 Specifications

Item	Specifications
Original pickup method	Auto duplex pickup/delivery
Original orientation	Face-up
Original placement	Center reference
Stack pickup method	Bottom separation Remarks: see p. 2-17.
Original type*	Sheet (50 to 105 g/m^2), single-sided sheet, double-sided sheet. Remarks: no extra-length original is handled.
Original size	A/STMT to A3/279 × 432 mm (11” × 17”)
Original tray capacity	Small size: 0 sheets (5.5 mm high max.) (A5, A5, B5R, A4, A4R, STMT, LTR, LTRR) Remarks: paper of 80 g/m^2 or less.
	Large size: 5 sheets (B4, A3, LGL, 279 × 432 mm (11” × 17”) Remarks: paper of 80 g/m^2 or less.
Delivery tray capacity	Small size: 50 sheets (A5, B5, B5R, A4, A4R, STMT, LTR, LTRR) Remarks: paper of 80 g/m^2 or less.
	Large size: 25 sheets (B4, A3, LGL, 279 × 432 mm (11” × 17”) Remarks: paper of 80 g/m^2 or less.
Original handling mode	Single-sided, double-sided originals
Original size identification	Length (feed direction), width
Residual original identification	Yes (in combination with host copier function)
Tandem feed	No
Mixed sizes	Yes Remarks: must be of the same width.
Communication with host copier	IPC communication 2
Power supply	By host copier (24 VDC)
Maximum power consumption	170 W or less
Weight	14.6 kg (approx.)
Dimensions (mm)	645 (W) × 521 (D) × 150 (H)
Serial numbers	AB LRF xxxx INCH/A NRC xxxx A UFG xxxx INCH/AB RRR xxxx
Operating environment	
Temperature range	Same as host copier.
Humidity range	Same as host copier.

The above specifications are subject to change for product improvement.

T01-200-01

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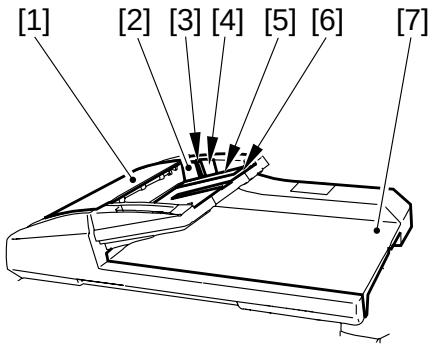
*The following may not be used as an original:
- Transparencies or sheets with an opacity of 80% or lower.
- Sheets with a carbon back.
- Sheets with a pasted attachment or which are bound.
- Sheets with clips or glue.
- Sheets with curl, wrinkle, or bend.

The same original must not be used on the machine more than once to prevent damage to the original.

3 Names of Parts

3.1 External View

[1] Upper cover
[2] Side guide
[3] Re-circulating lever
[4] Original Set indicator
[5] Original tray
[6] Auxiliary tray
[7] Body cover



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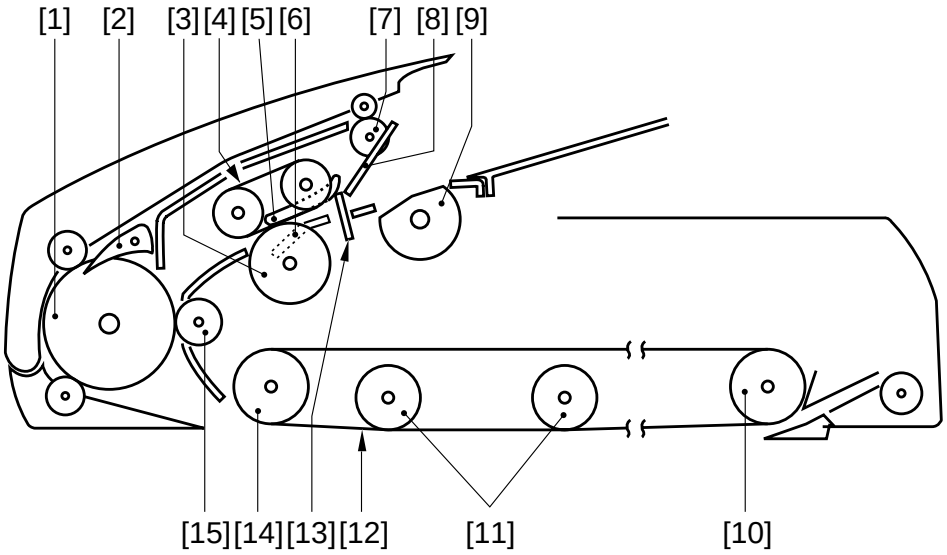
3.2 Cross Section



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[1] Delivery/reversing roller
[2] Paper deflecting plate
[3] Feed roller
[4] Separation belt
[5] Separation flapper
[6] Pre-separation guide
[7] Delivery/pickup roller
[8] Paper retaining plate
[9] Pickup roller
[10] Feed belt slave roller
[11] Retaining roll
[12] Feed belt
[13] Paper stopper plate
[14] Feed belt drive roller
[15] Registration roller

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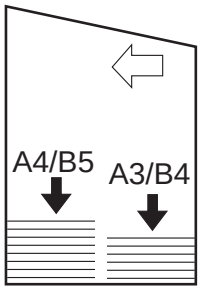
4 Operating the Machine

4.1 Original Set Indicator

The Original Set indicator remains on when originals are placed on the original tray, and flashes in response to a jam.



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Operating Procedure

1) If the originals are B5R or larger or A5, extend the original auxiliary tray.
2) Set the side guide to suit the size of the originals.

REF.

If the width of the originals is greater than 297 mm (A4/A3), the side guide lock must be disengaged. For details, see 3. “Side Guide Lock” on p. 3-3.

3) Place the originals on the original tray with the first page on top.
4) As necessary, set the appropriate mode on the host copier.
5) Press the host copier’s Start key.

4.2 Warnings and Actions to Take

If the Original Set indicator starts to flash while an original is being fed, a jam may be suspected; go through the following to remove the jam.

1) Remove the originals from the original tray.
2) Open the upper cover, and remove the jam if found. Then, open the machine to clear the warning. If an original is found on the copyboard glass, remove it.

If the jam is in the host copier, do not open the machine to reset. The copier's recovery mode will automatically take care of the discrepancy.

3) Put the originals back into sequence (first page on top), and place them in the machine.

4.3 Routine Maintenance by the User

Advise the user to clean the following at least once a week.

4.3.1 Copyboard glass

Wipe it with a cloth moistened with water or alcohol; then, dry wipe it.

4.3.2 Feed Belt

Wipe it with water or alcohol.

4.3.3 Others

Check the parts of the machine. If any part is soiled, wipe it using solution of mild detergent. (Be sure to dry wipe afterward to remove all residues of detergent.)

4.3.4 Separation Belt and Feed Roller

Clean them using the host copier's user mode.

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CHAPTER 2

OPERATIONS AND TIMING

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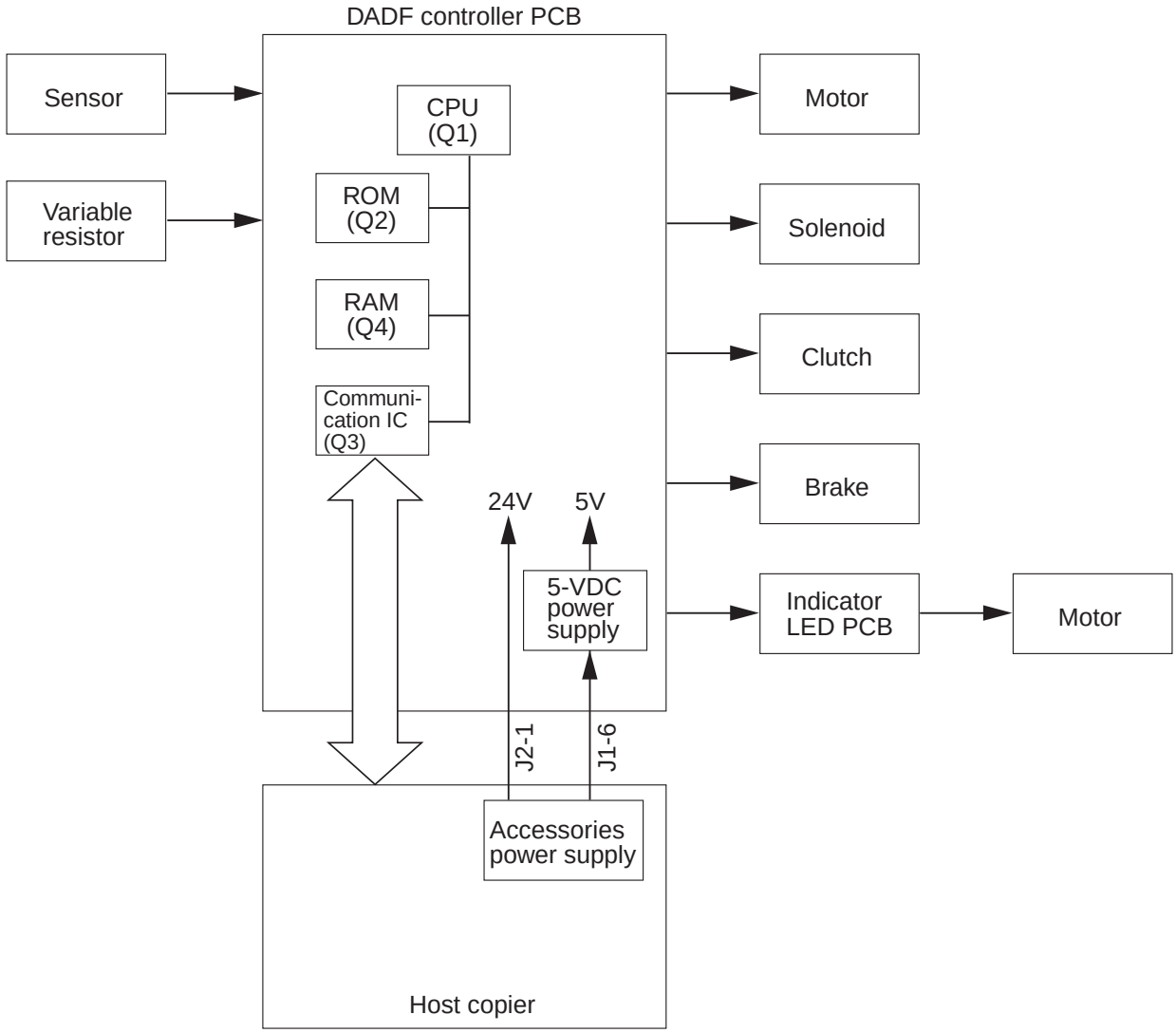
1 Basic Construction

1.1 Outline of the Electrical Circuitry

The electric mechanisms of the machine are controlled by the DADF controller PCB, which is equipped with a microprocessor (CPU).

The microprocessor reads the input signal from sensors and the signals from the host copier to generate signals used to drive such DC loads as motors and solenoids at such times as programmed in advance.



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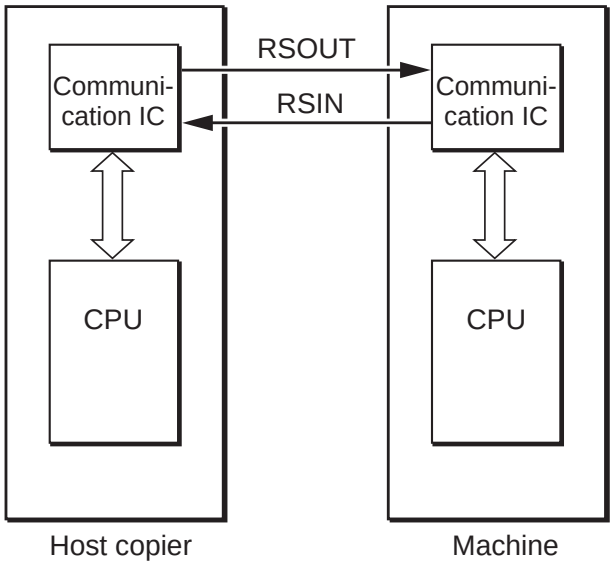
1.2 Communication with the Host copier

The operating mode selected on the host copier is communicated to the machine in IPC communication mode. The host copier's self diagnostic mechanism is designed to detect an error in IPC communication and indicate a code (E712) upon detection.

The machine's IPC communication mode is known as IPC communication 2, which differs from the existing mode in that it enables exchanges of data at a higher speed.



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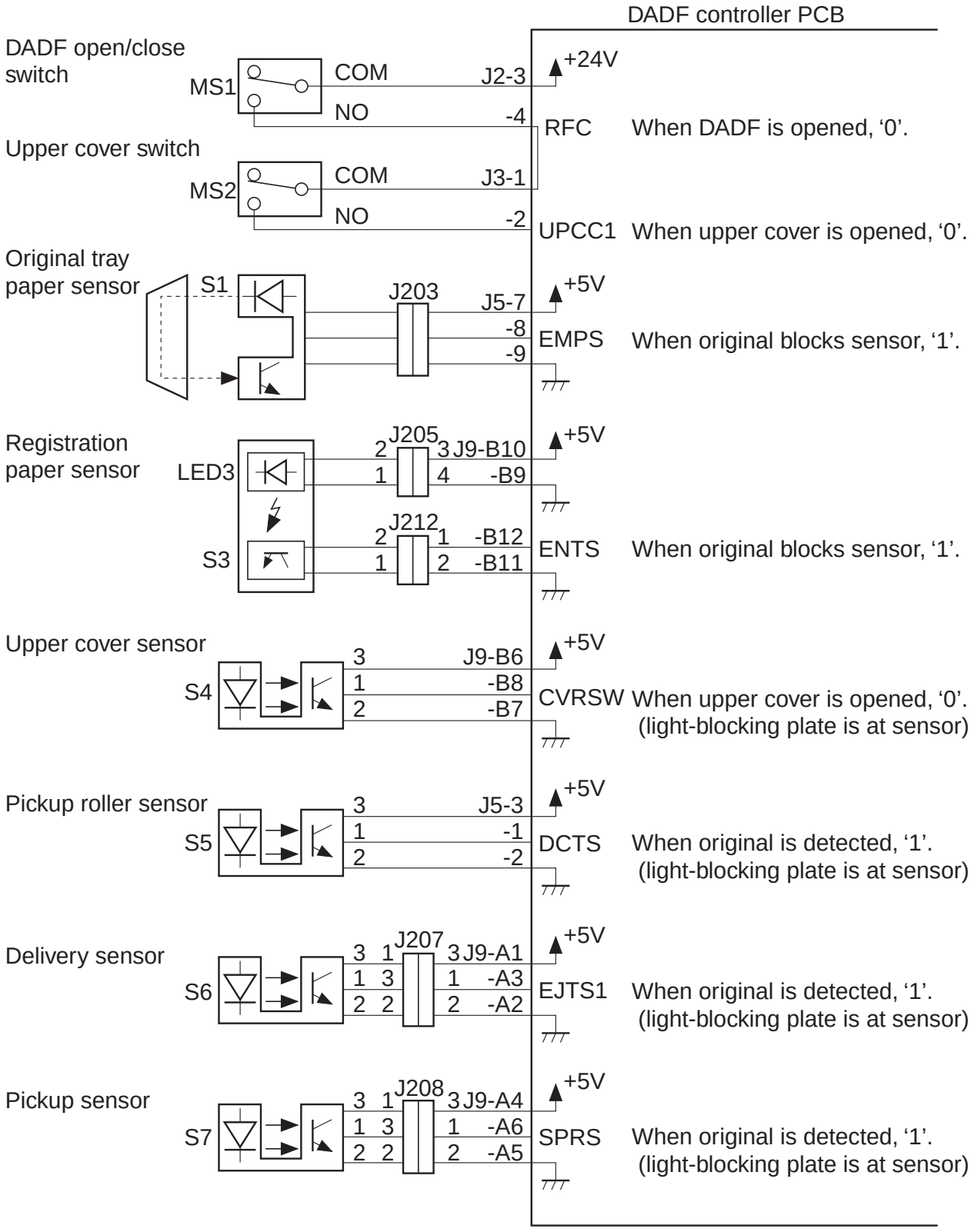
1.3 Inputs to the DADF Controller PCB

1.3.1 Inputs to the DADF Controller PCB (1/2)



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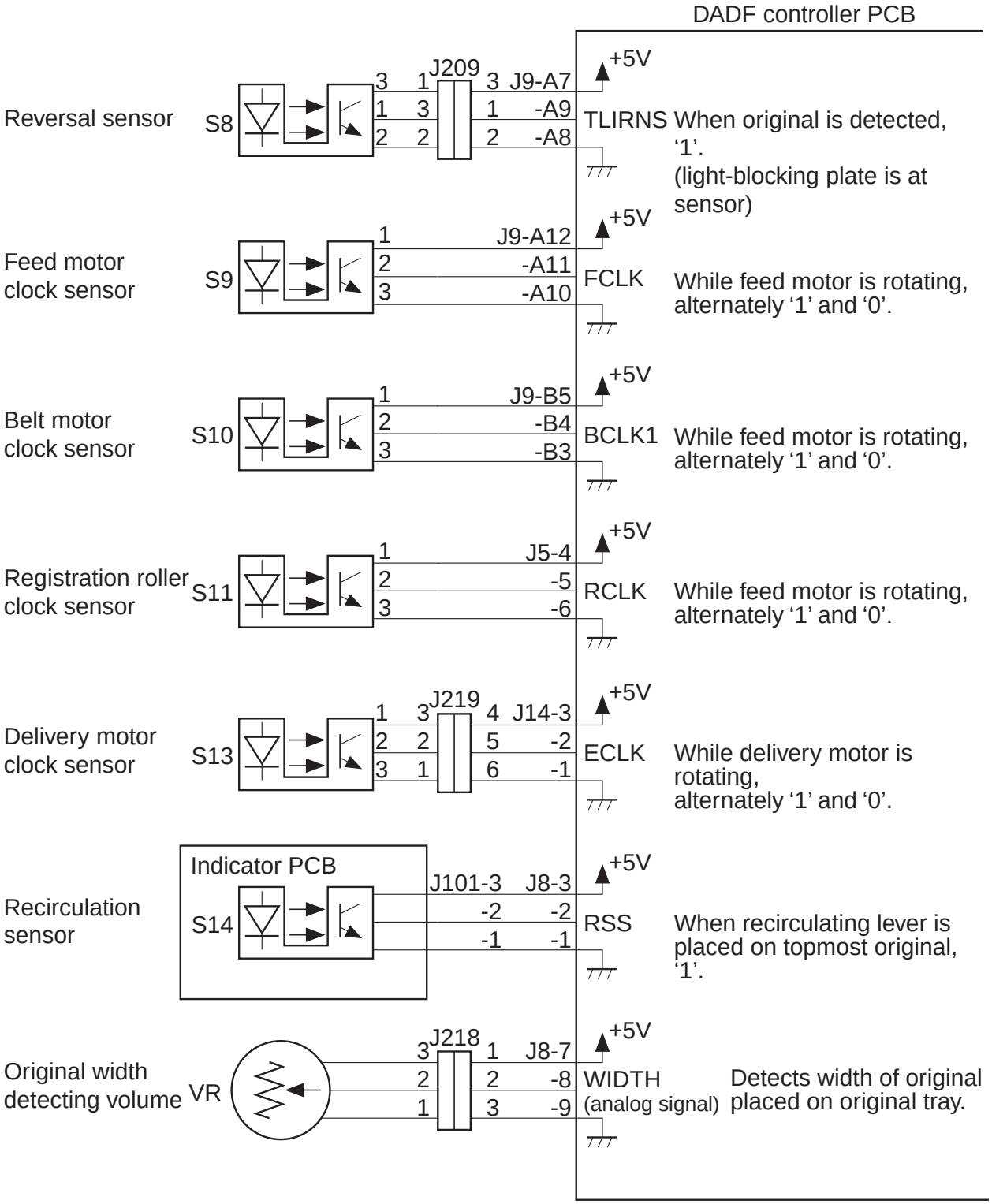
1.3.2 Inputs to the DADF Controller PCB (2/2)



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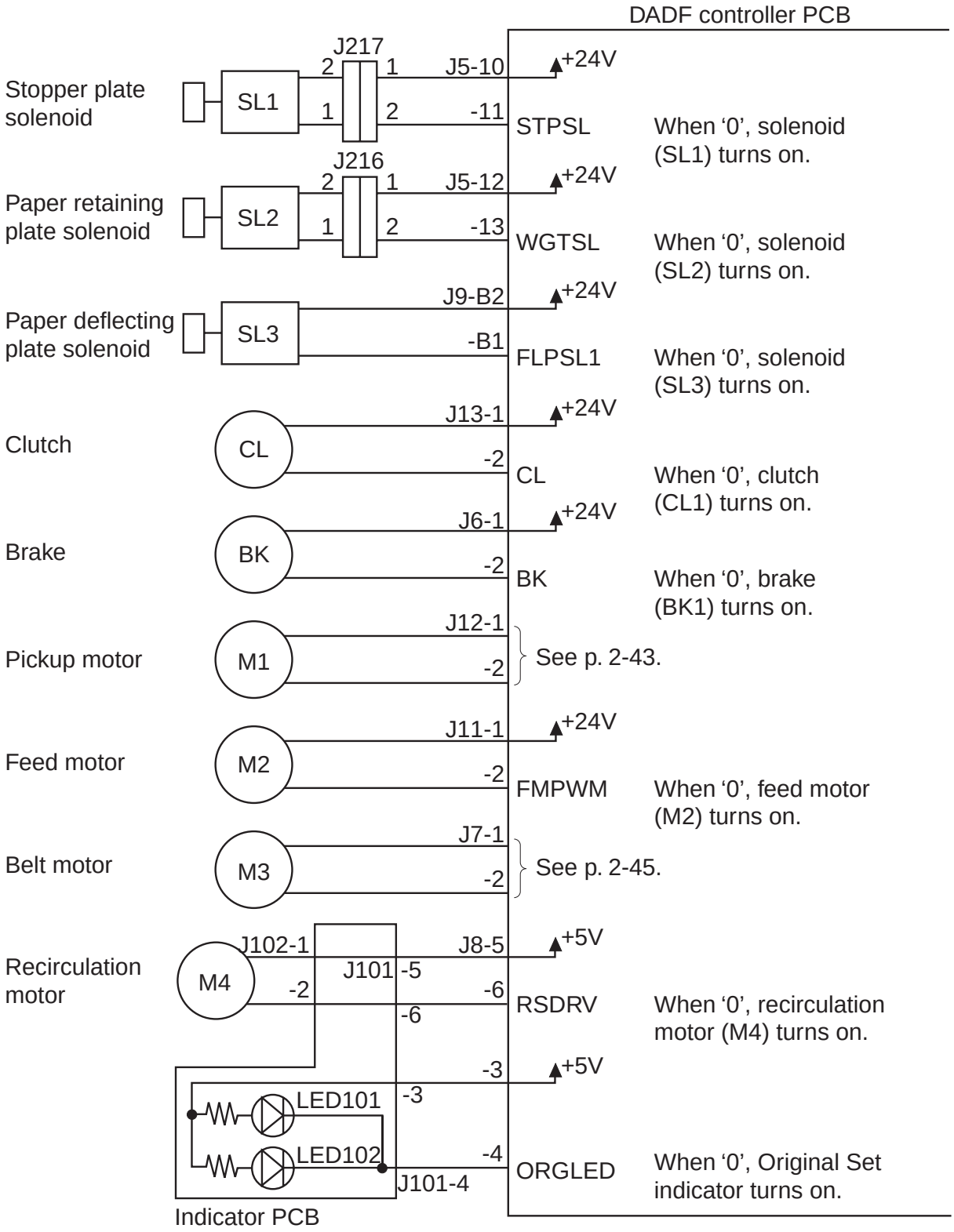
1.4 Outputs from the DADF Controller PCB

1.4.1 Outputs from the DADF Controller PCB (1/1)



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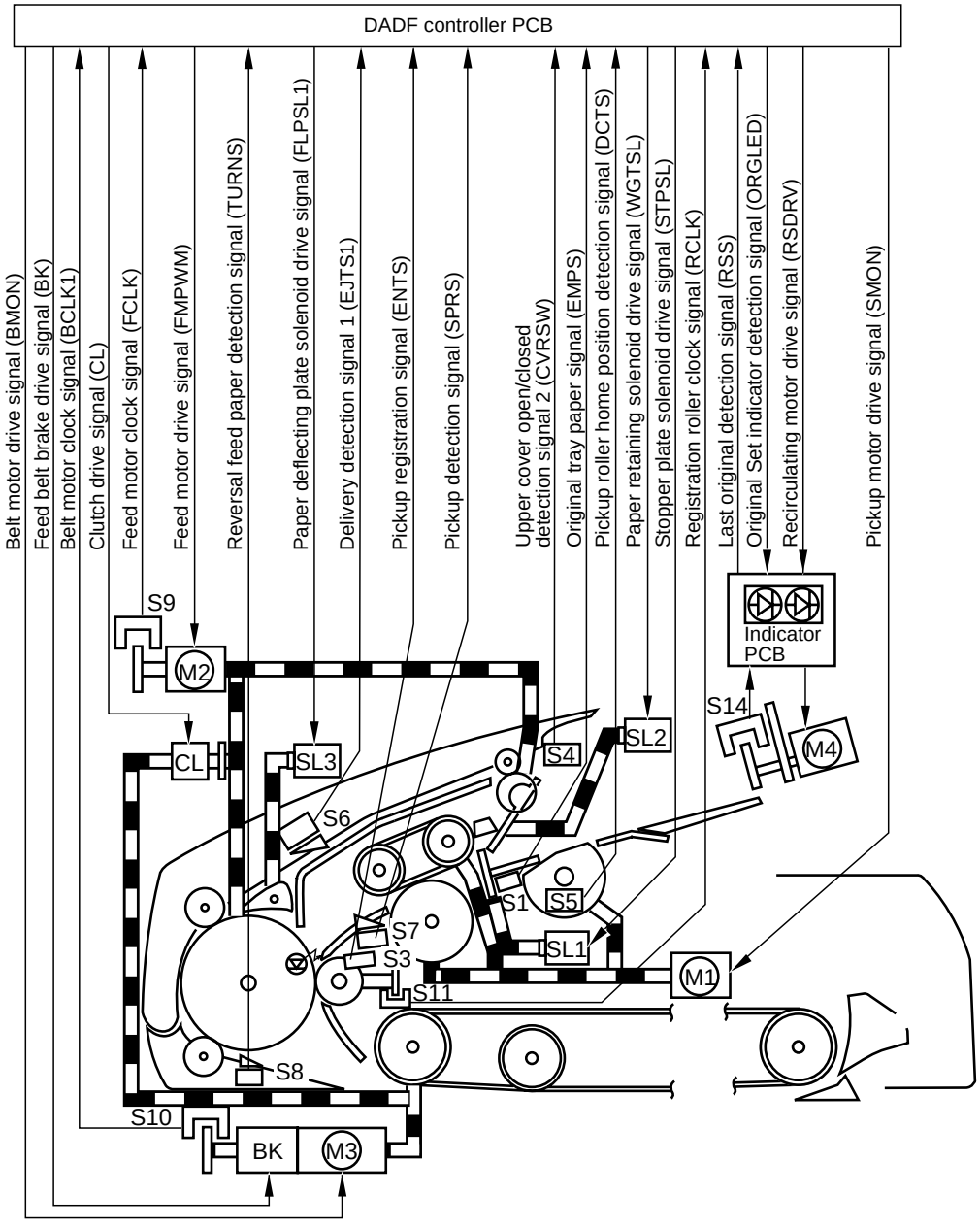
2 Basic Operations

2.1 Outline

The machine uses four motors and one clutch to pick up, feed, and deliver originals.

The pickup motor (M1) is used for picking up originals, while the feed motor (M2) is used for delivering and reversing originals. The belt motor (M3) moves originals to the copyboard and position them, while the delivery motor (M3) delivers originals to the delivery tray.

The clutch (CL) is designed to engage or disengage the drive from the feed motor (M2) or the belt motor (M3).



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2.2 Operations

The machine offers the following four modes of operation:

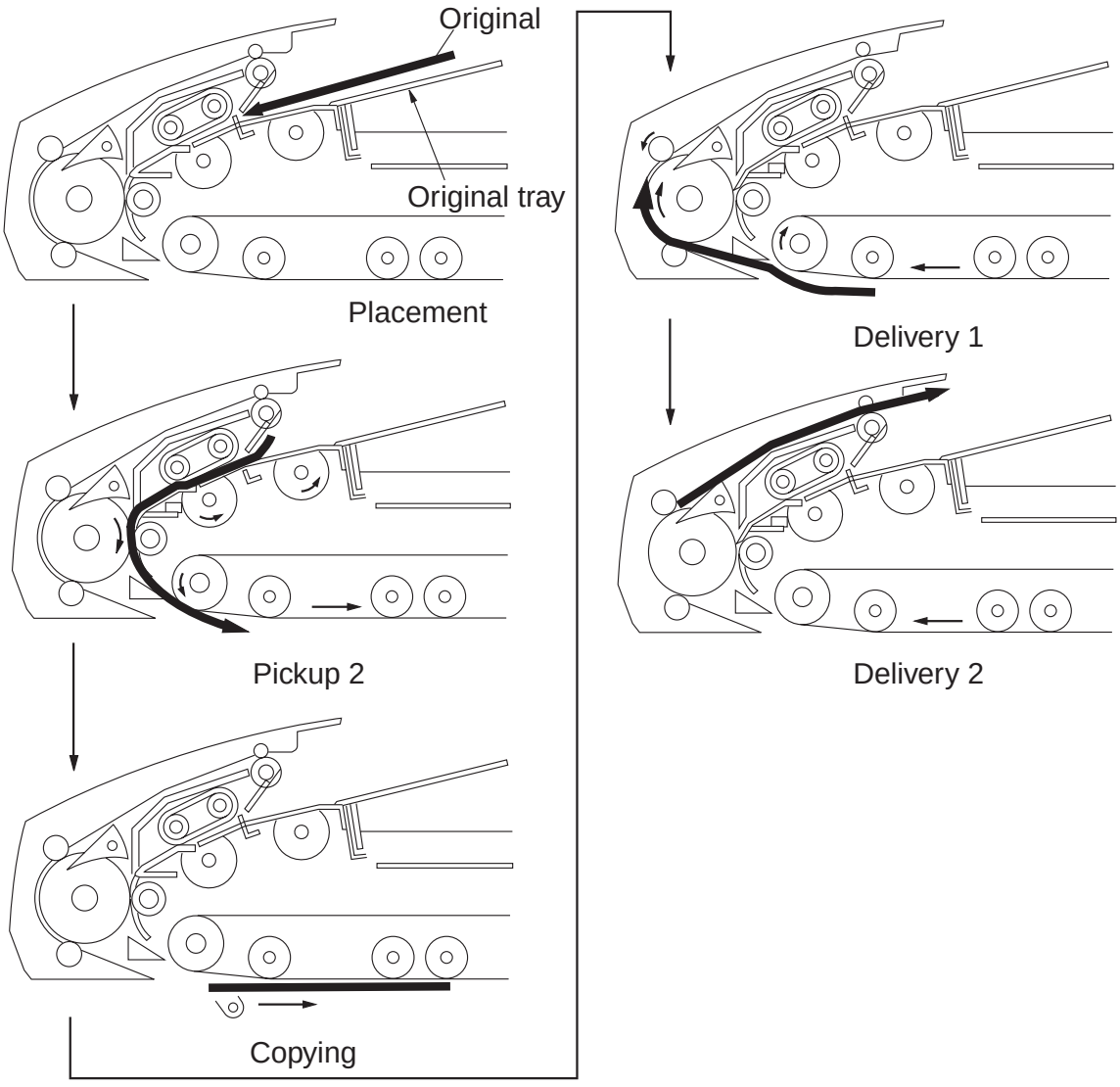
1. making single-sided copy of single-sided original
2. making single-sided copy of double-sided original
3. making double-sided copy of single-sided original
4. making double-sided copy of double-sided original

The machine moves originals in either of the following two ways in keeping with the instructions from its host copier:

2.2.1 Single-Sided Original Mode

When a stack of originals is placed on the original tray, it picks up the originals starting with the bottommost (last page), and places them on the copyboard glass one by one.

As each original is copied, it moves it from the copyboard glass back to the original tray.



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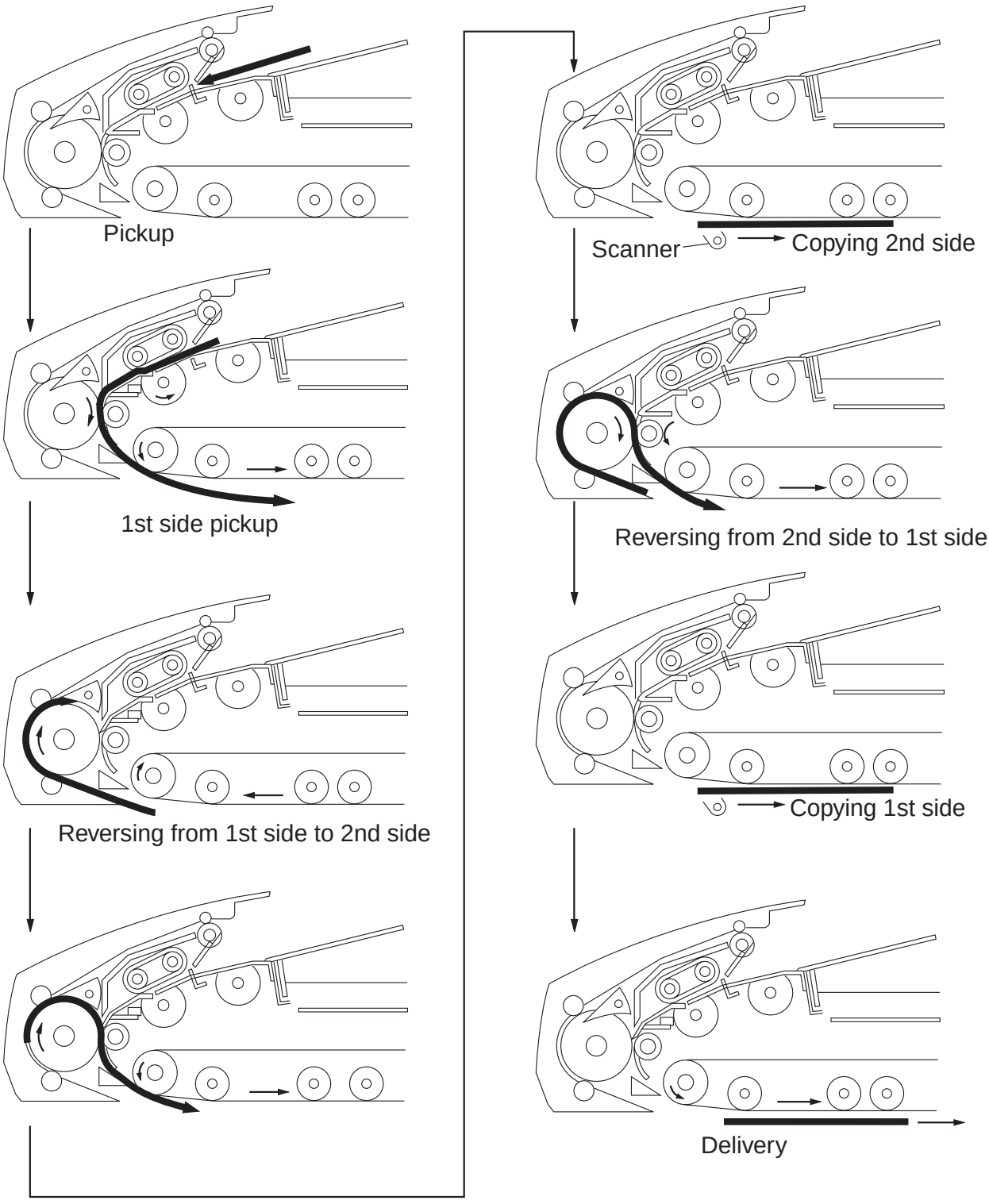
2.2.2 Double-Sided Original Mode

The machine uses this mode when copying the face (side 1) and the back (side 2) of an original by automatically reversing it.

a. Reversing the Original, Copying the 2nd Size, Copying the 1st Side, and Delivering the Original



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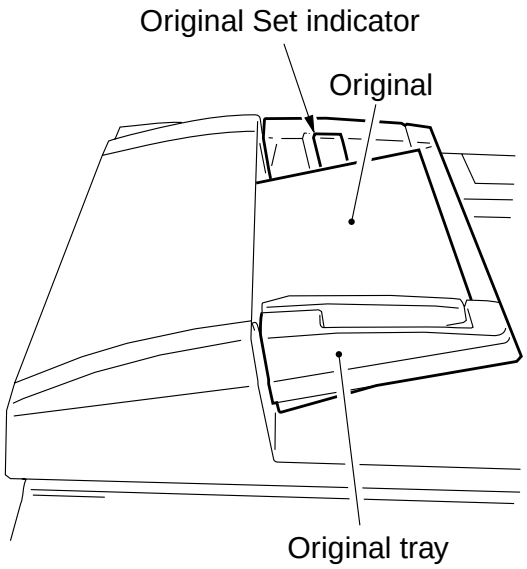
2.3 Detecting Originals

2.3.1 Outline

The machine's original detection mechanism is capable of the following four types of detection:

1. presence/absence of an original on the original tray.
2. size of the originals placed on the original tray.
3. number of originals to find out whether all have been copied.
4. trailing edge of the last original.



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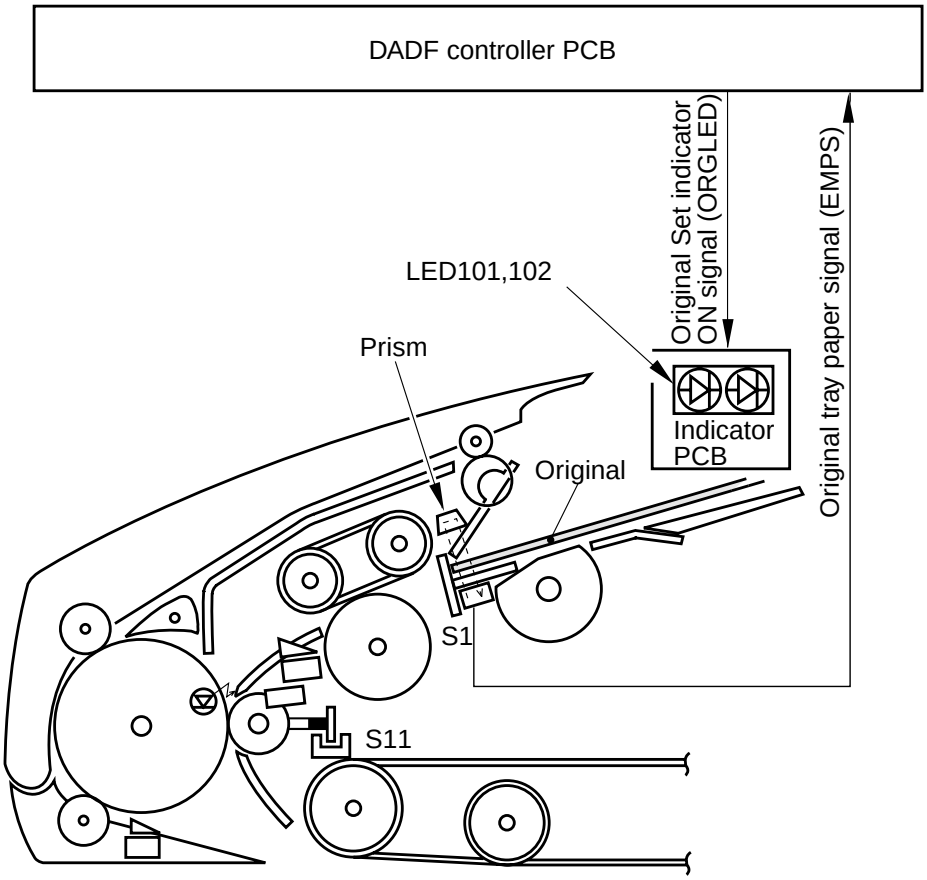
2.3.2 Detecting the Presence/Absence of an Original

The presence/absence of an original is detected using the original tray paper sensor (S1).

When an original is placed on the original tray, the light between the original tray paper sensor (S1) and the prism is blocked, causing the original tray paper sensor (S1) to generate the original detection signal (EMPS).

The DADF controller PC turns on the Original Set indicator (LED101, 102) in response to the original detection signal (EMPS).



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2.3.3 Detecting the Size of Originals

a. Outline

The machine identifies the size of an original in terms of its vertical (feeding direction) and horizontal directions.

b. Detection in Vertical Direction (feeding direction)

Detection in vertical direction is performed using the registration paper sensor (S3) and the registration roller clock sensor (S11).

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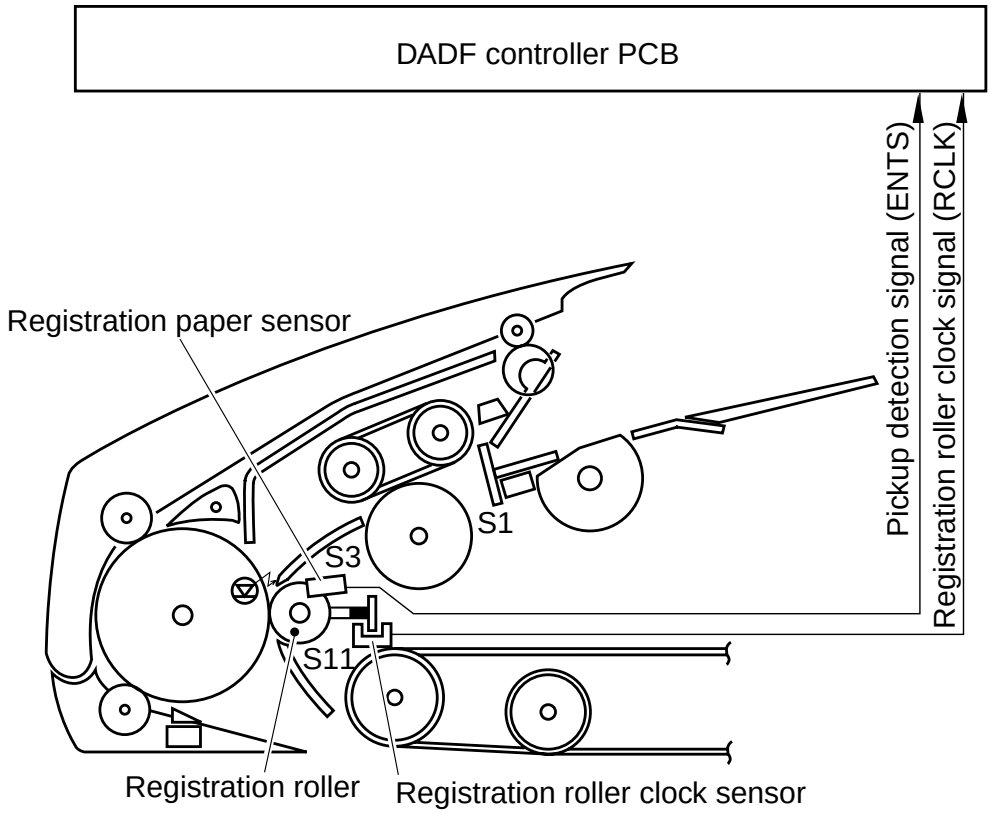
The registration paper sensor detects the leading and trailing edges of an original, and the registration clock sensor checks the degree of rotation made by the registration roller while the original moves past. The DADF controller PCB then converts the degree of rotation into a length, which is assumed to be the length of the original.



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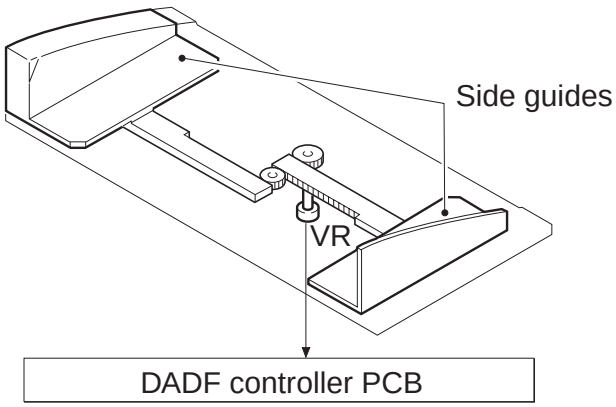
c. Detection in Horizontal Direction

Detection in horizontal direction is performed using the original width detecting variable resistor (VR). The VR operates in conjunction with the side guide, changing its resistance. The DADF controller PCB detects the changes in resistance, and converts the result into a length in horizontal direction.



F02-203-04

The host copier uses the results of detection made by the machine (i.e., lengths in vertical and horizontal directions) to identify the size of a specific original in terms of a default size.

An original may be identified as being one of the following default sizes:

d. A-Configured DADF, A/B-Configured DADF

Default size	Vertical length	Original width
B5R	257 mm	177 to 187 mm
A5	148.5 mm	205 to 215 mm
A4R	330 mm	205 to 215 mm
FOOLSCAP	330 mm	205 to 215 mm
B5	182 mm	252 to 262 mm
B4	364 mm	252 to 262 mm
COMPUTER paper	381 mm	274 to 284 mm
A4	210 mm	292 to 302 mm
A3	420 mm	292 to 302 mm

T02-203-01

Each default size allows a margin of ±10 mm in vertical direction and ±5 mm in horizontal direction; a size falling outside will be identified as being a non-default size.

e. Inch-Configured DADF

Default size	Vertical length	Original width
STMT	140 mm	211 to 221 mm
LTRR	279 mm	211 to 221 mm
FOOLSCAP	330 mm	211 to 221 mm
LGL	356 mm	211 to 221 mm
LTR	216 mm	274 to 284 mm
COMPUTER paper	381 mm	274 to 284 mm
279 mm × 432 mm (11” × 17”)		432 mm

T02-203-02

Each default size allows a margin of ±10 mm in vertical direction and ±5 mm in horizontal direction; a size falling outside will be identified as being a non-default size.

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f. Inch-A-Configured DADF, Inch/AB-Configured DADF

Default size	Vertical length	Original width
B5R	257 mm	177 to 187 mm
A5	148 mm	205 to 215 mm
A4R	279 mm	
STMT	140 mm	214 to 221 mm
LTRR	279 mm	
FOOLSCAP	330 mm	
LGL	356 mm	
B5	182 mm	252 to 262 mm
B4	364 mm	
LTR	216 mm	274 to 284 mm
COMPUTER paper	381 mm	
279 mm × 432 mm (11” × 17”)	432 mm	
A4	210 mm	
A3	420 mm	

T02-203-03

Each default size allows a margin of ±10 mm in vertical direction and ±5 mm in horizontal direction; a size falling outside will be identified as being a non-default size.

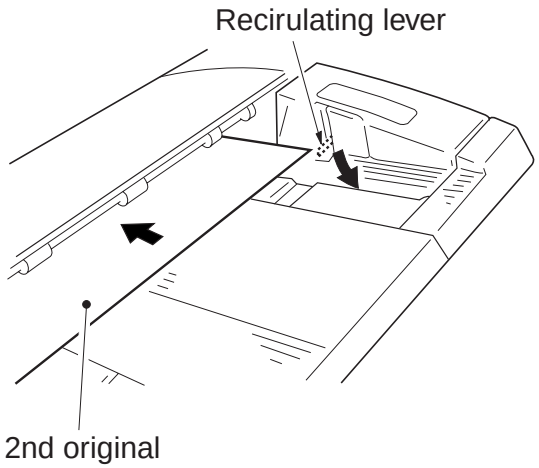
2.3.4 Detecting the Trailing Edge of the Last Original

A host copier with a relatively long paper path (from the cassette to the drum) is designed to pick up paper early to increase printing speed, possibly having picked up the next sheet of paper by the time the machine picks up the last original and places it on the copyboard glass.

To avoid such a problem, the machine is designed to pick up originals in keeping with the timing at which its host copier picks up paper. If the originals are 220 mm or shorter, it picks up the first original and places it on the copyboard glass; then, it picks up the second original and moves it beyond the registration roller.

If the recirculating lever is on the original tray, the machine will indicate to its host copier the presence of the third original (and subsequent originals), causing the host copier to pick up the next sheet of paper.

If the recirculating lever is not on the original tray, on the other hand, the machine will indicate to its host copier the absence of an original (generating the RSS signal) so that its host copier will not pick up the next sheet of paper.



F02-203-05

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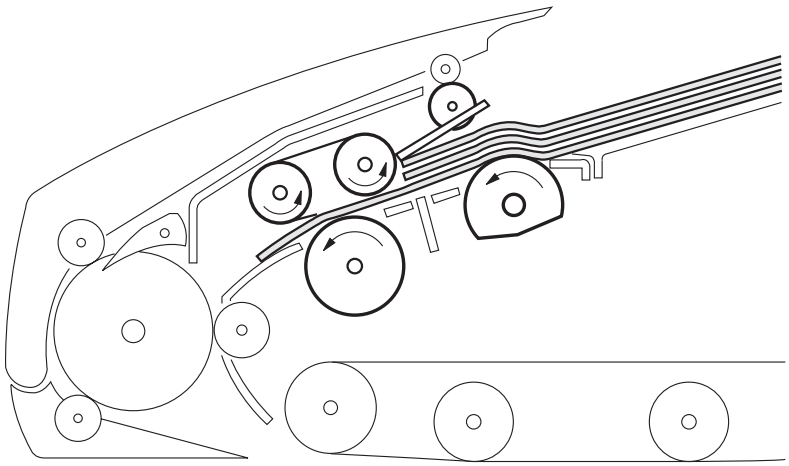
2.4 Picking Up Originals

2.4.1 Outline

The machine uses bottom pickup (i.e., pickup starts with the bottommost sheet of a stack). The following figure shows how the machine's pickup assembly is constructed.



F02-204-01

2.4.2 Pickup Operation

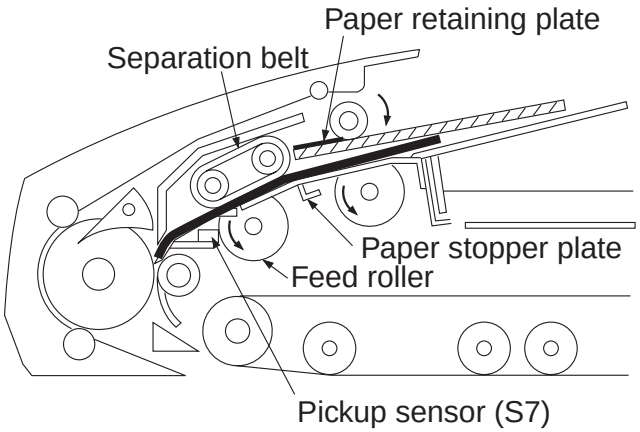
a. Operations

The following pickup operations will take place when a stack of originals is placed on the original tray and the Start key is pressed:

1) Pickup Separation

The paper stopper plate is moved down, and the paper retaining plate is moved down to the stack; then, the bottommost original is picked up.

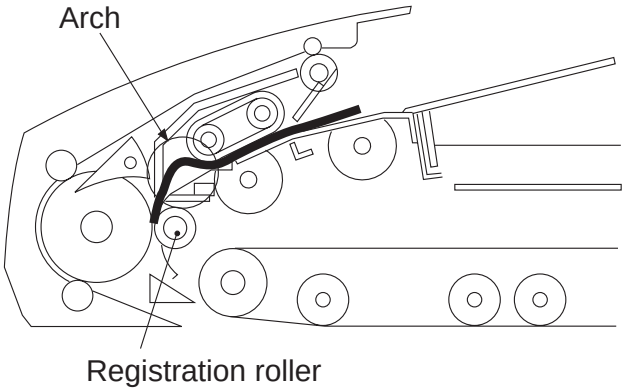
After pickup, the original is moved between the separation belt and the feed roller to prevent double-feeding.



F02-204-02

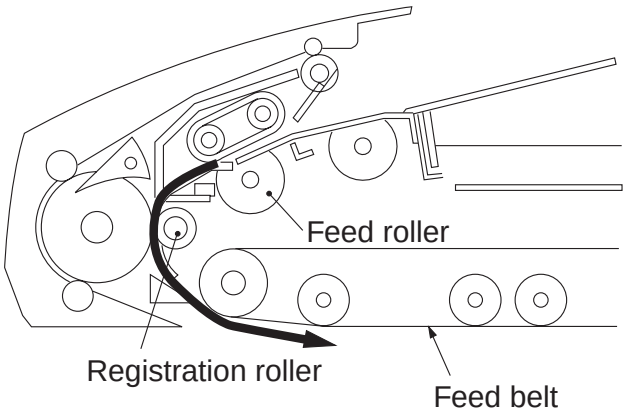
The paper retaining plate is always moved down when picking up the first original. The paper retaining plate is moved down when picking up the second and subsequent originals only when pickup is prevented (e.g., the pickup roller may have slipped) and, thus, the pickup sensor (S7) fails to detect an original within 400 msec after the pickup motor has turned on. This consideration is made to ensure good feeding performance.

2) Arching
The original is butted against the registration roller, and is made to arch.



F02-204-03

3) Feeding
The feed belt, registration roller, and feed roller are rotated to move the original to the copyboard glass.



F02-204-04

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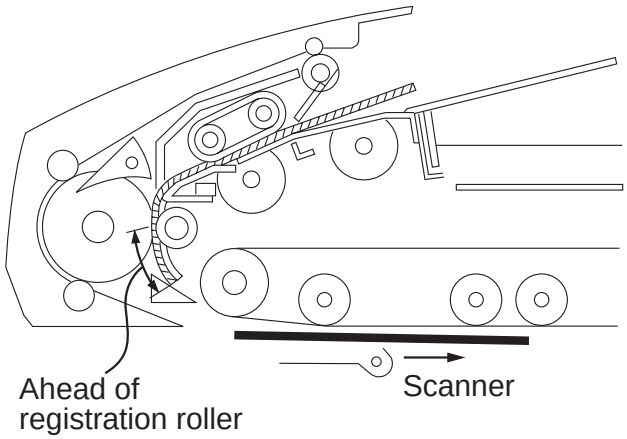
4) Picking Up the Next Original
When the original reaches a specific point on the copyboard glass, the host copier's scanner starts to move forward. At the same time, if the original is of a small size, the next original is picked up.
If the original is of a large size, on the other hand, the next original is picked up after delivering the first original.

Small size	A5, B5, B5R, A4, STMT, LTR, LTRR
Large size	B4, A3, LGL, 279 mm × 432 mm (11" × 17")

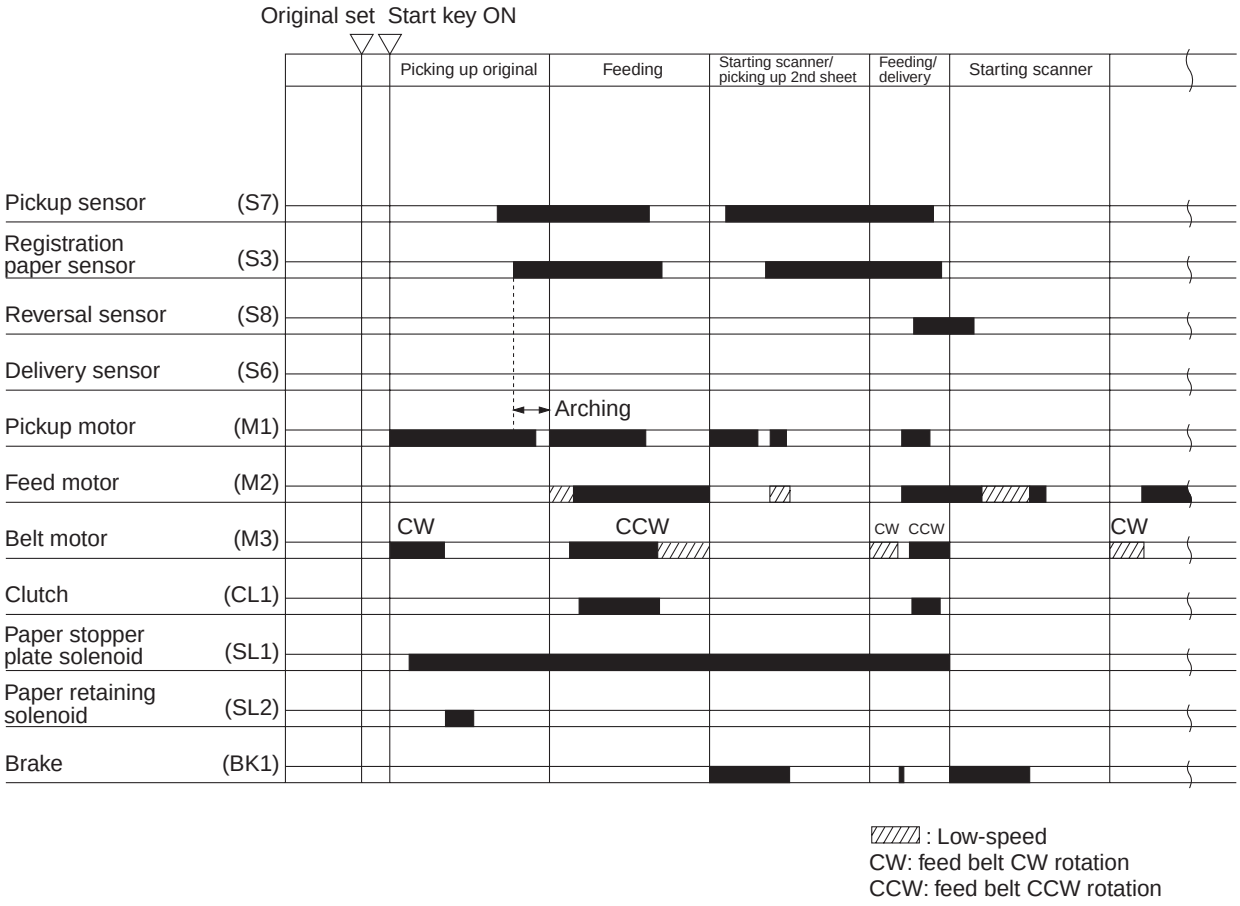
T02-204-01

In the case of small-size originals, the originals are moved beyond the registration roller so as to reduce the feed time.



F02-204-05

b. Sequence of Operations (pickup; A4, 2 copies)



F02-204-06

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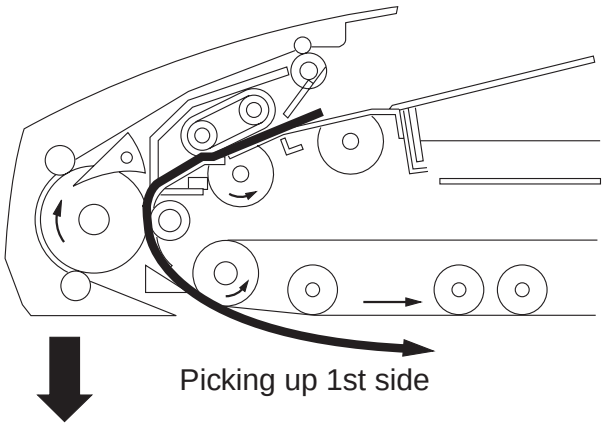
2.5 Reversing Originals

2.5.1 Operations

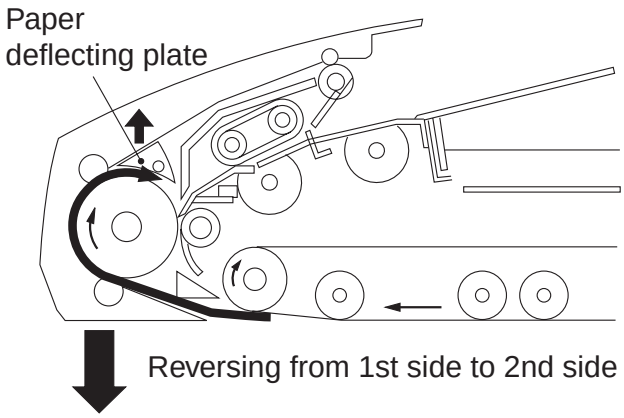
An original may be turned over from its first side to second side or from its second side to first side. The same mechanism is used, and the following represent reversal from the first side to the second side:

1. Picking Up for the 1st Side
   The original is picked up from the original tray to the copyboard glass.



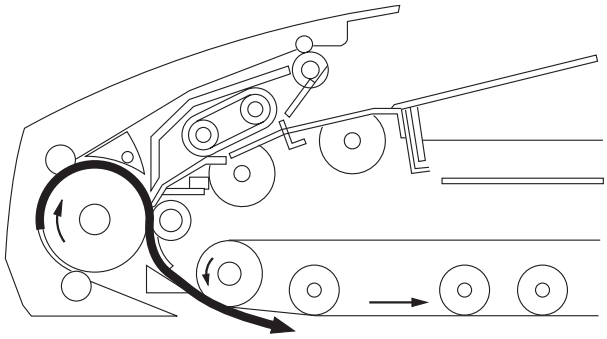
F02-205-01

2. Reversing/Feeding
   The feed belt is rotated in clockwise direction so that the original on the copyboard glass is moved in reverse.



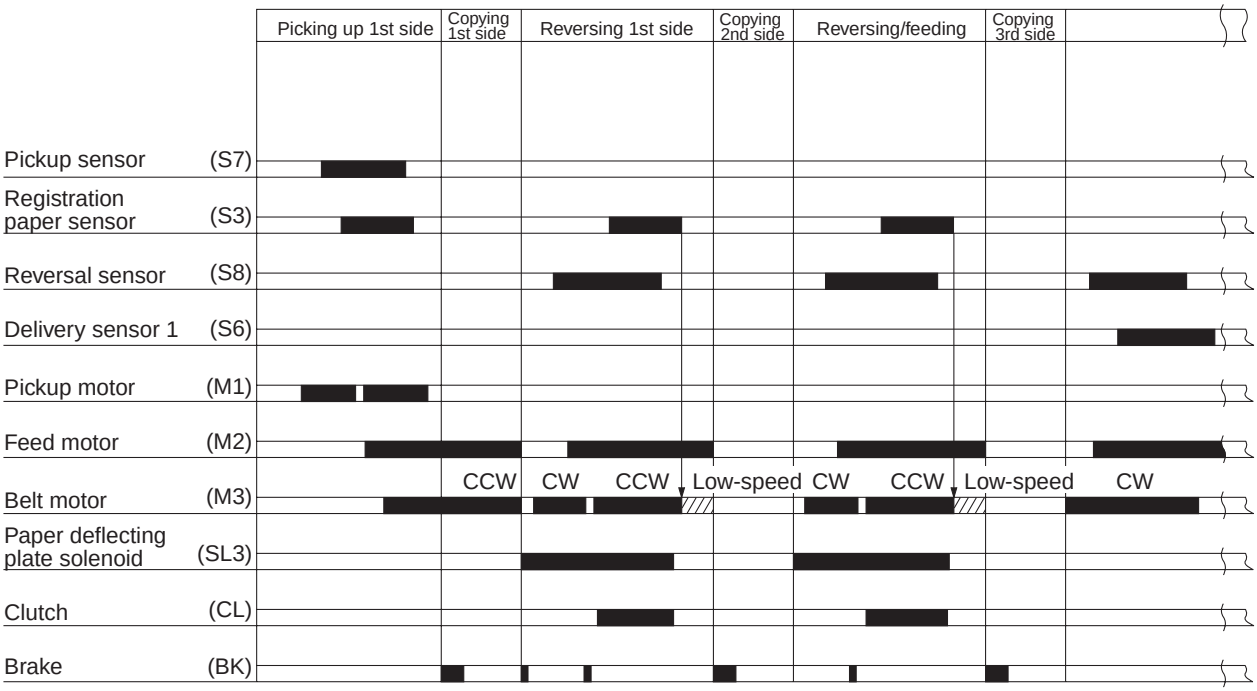
F02-205-02

3. Reversing/Switching Delivery
   The paper deflecting plate solenoid (SL3) is turned on to open the paper deflecting plate so that the original is moved back to the copyboard glass (turned over by the time it reaches the copyboard glass).
   The scanner starts to move forward when the second original is placed on the copyboard glass.
   While the scanner is moving in reverse, the original is reversed, and the first original is placed on the copyboard glass.
   The original is delivered when its 1st side has been copied.



F02-205-03

2.5.2 Sequence of Operations (reversal)



F02-205-04

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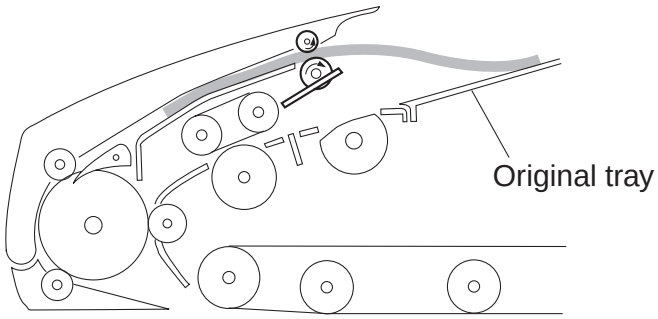
2.6 Delivery

2.6.1 Outline

The machine is designed to deliver originals to the original tray.



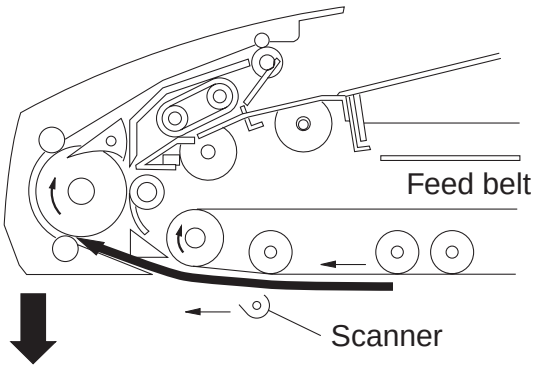
F02-206-01

2.6.2 Delivery Operations

a. Operations

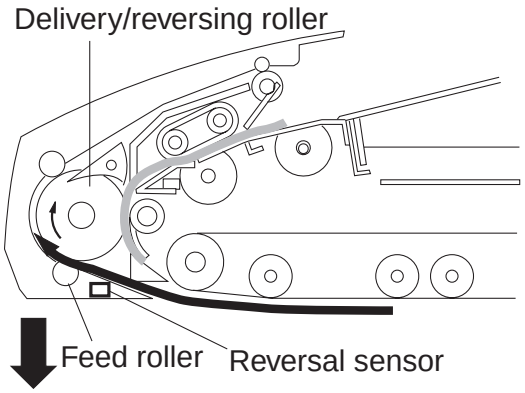
Originals are delivered to the original tray as follows from the copyboard glass:

1. Using the Feed Belt
   The feed belt is rotated in clockwise direction to deliver the original from the copyboard glass.



F02-206-02

2. Using the Delivery/Reversing Roller
   The original carried by the feed belt is put between the delivery/reversing roller and the feed roller and moved ahead. In the case of small-size originals, as many as two originals are repicked up at the same time.

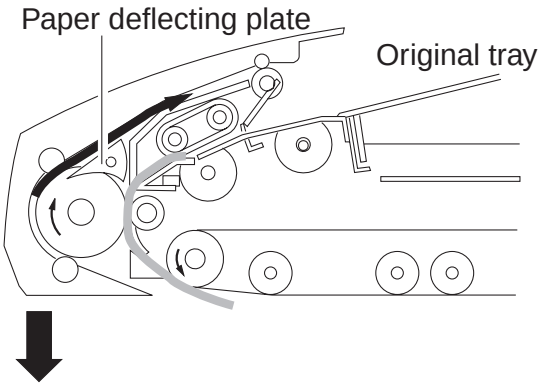


F02-206-03

REF.

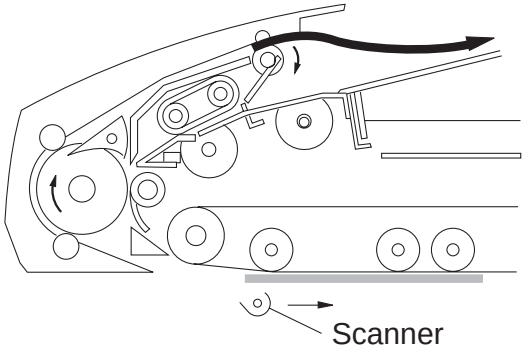
When the leading edge of an original reaches a point about 15 mm ahead of the reversal sensor (S8), the feed belt starts to rotate in counterclockwise direction to prepare for the next pickup operation.

3. Delivery/Reversal Switching
   The paper deflecting plate solenoid (SL3) is off so that the paper deflecting plate remains closed, causing the original to move toward the original tray. The next original is moved to the copyboard glass.



F02-206-04

4. Delivering to the Original Tray
   As soon as the trailing edge of the original moves past the delivery roller, the feed motor switches to low-speed rotation to limit the impact of delivery.



F02-2-6-05

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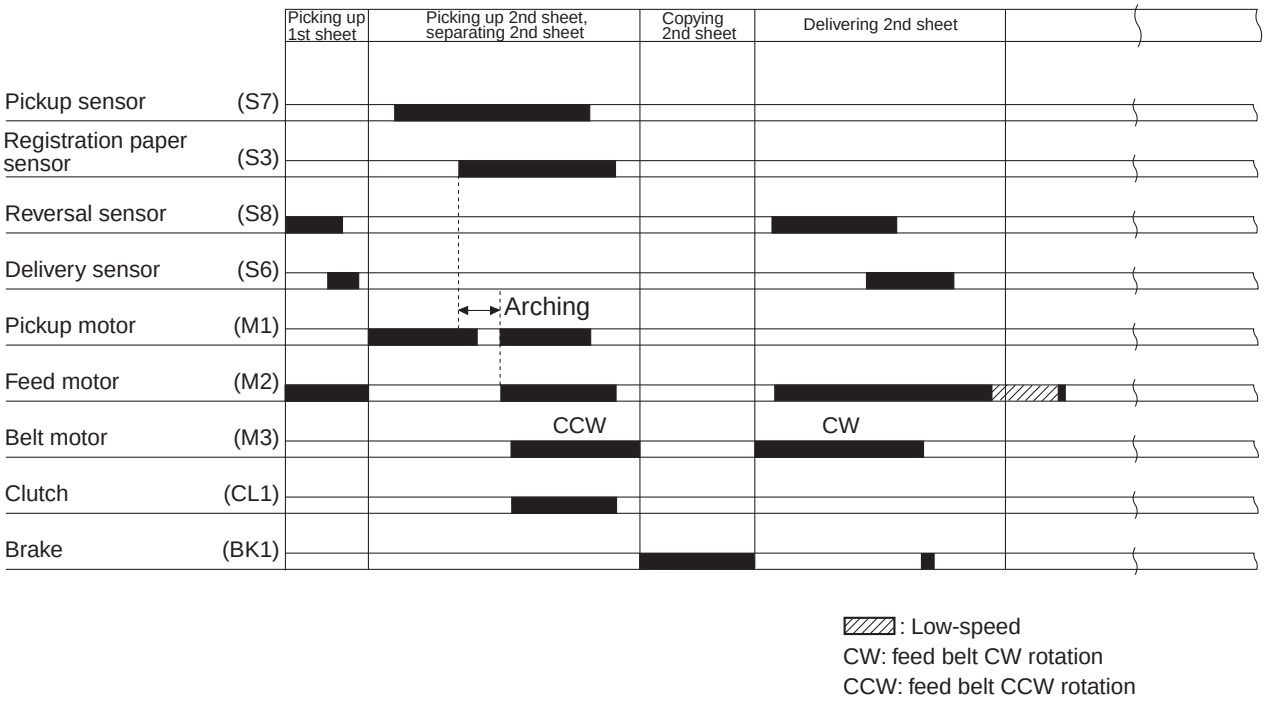
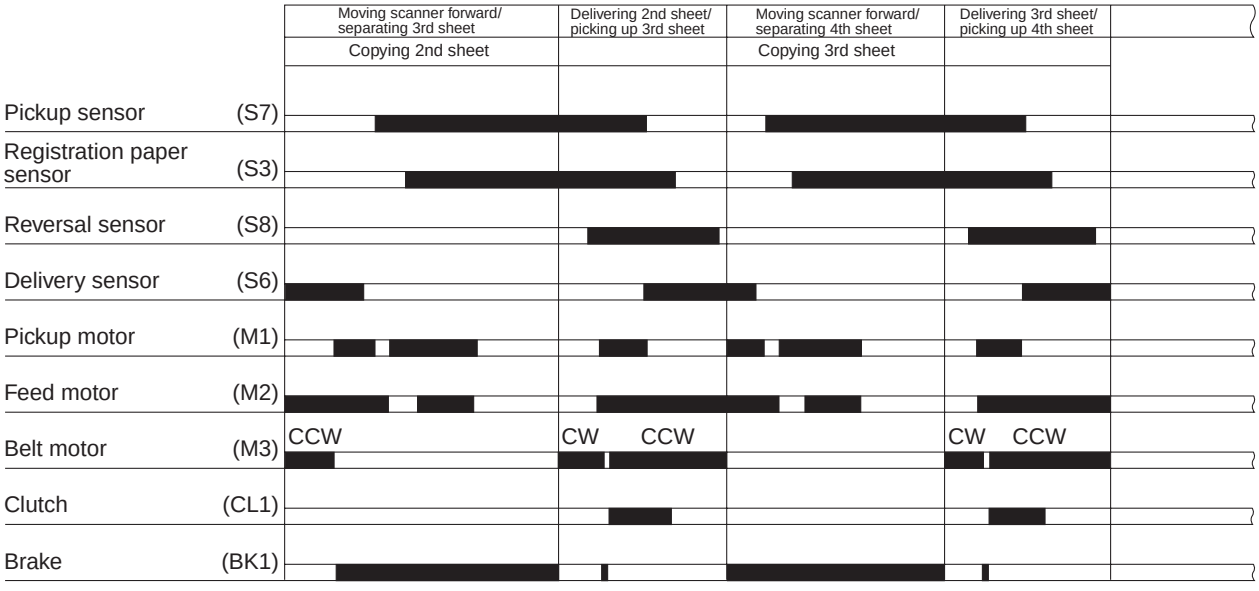
b. Sequence of Operations (large-size, mixed size mode; pickup and delivery of 2nd original)



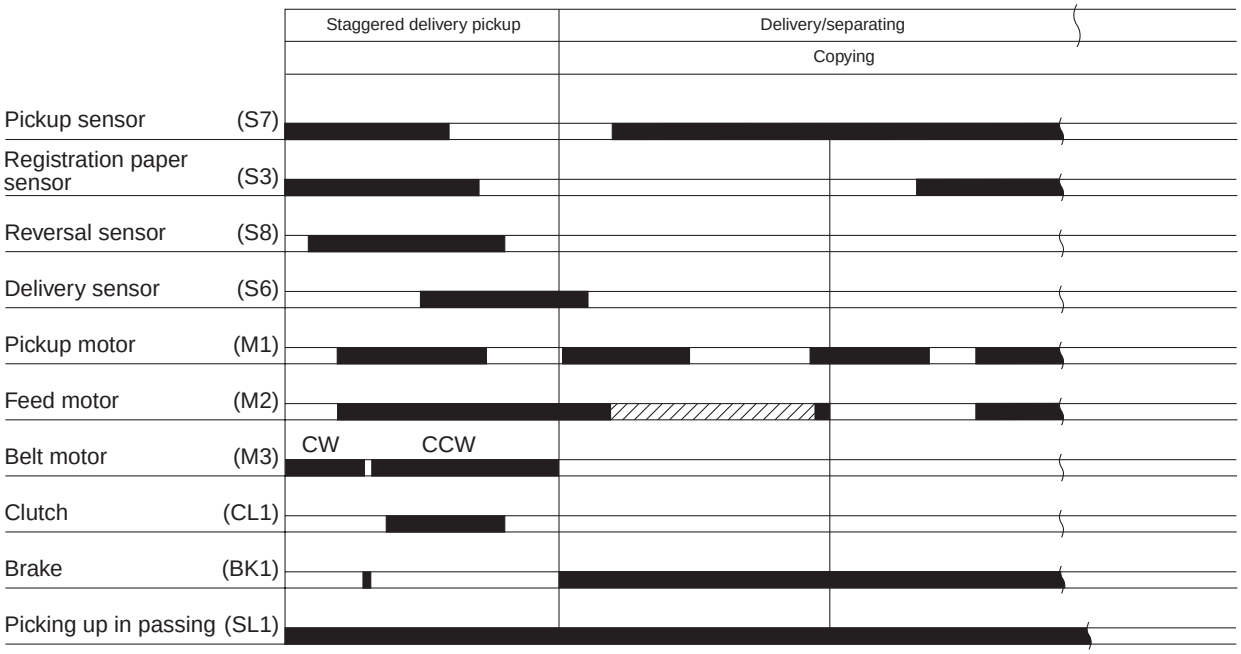
F02-206-06

c. Sequence of Operations (small-size, continuous; pickup and delivery)



F02-206-07

d. Sequence of Operations (small-size; delivery)



F02-206-08

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2.7 Controlling the Pickup Motor

2.7.1 Outline

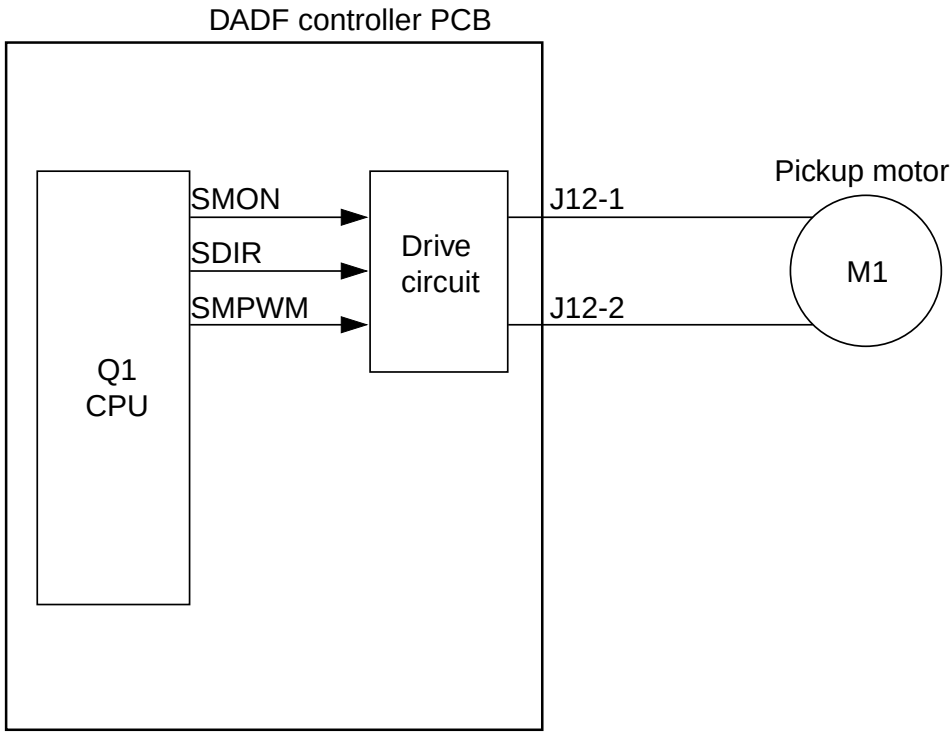
The following figure shows an outline of the circuit used to control the pickup motor:

The feed motor is a DC motor.

The microprocessor (Q1) on the DADF controller PCB sends to the drive circuit the pickup motor drive signal (SMON), pickup motor rotation direction signal (SDIR), and pickup motor rotation speed control signal (SMPWM).

The drive circuit drives the pickup motor in response to the incoming three types of signals.

The control circuit is not equipped with a circuit designed to communicate the state of rotation of the pickup motor back to the microprocessor (Q1) as feedback. Since the pickup motor rotation speed control signal (SMPWM) remains a specific level at all times, no correction will be made even when changes occur in the speed of rotation of the pickup motor as a result of external forces.



F02-207-01

2.7.2 Relationship Between the Pickup Roller and the Pickup Motor Drive Signal (SMON), Pickup Motor Rotation Direction Signal (SDIR), and Pickup Motor Rotation Speed Control Signal (SMPWM)

Belt motor drive signal (SMON)	Belt motor rotation direction signal (SDIR)	Belt motor rotation speed control signal (SMPWM)	Pickup roller operation
'1'	'1'	Pulse	Pickup roller rotates CCW.
'1'	'1'	'0'	Pickup roller rotates CCW by inertia.
'1'	'0'	Pulse	Pickup roller rotates CW.
'1'	'0'	'0'	Pickup roller rotates CW by inertia.
'0'	'1'/'0'	'1'/'0'	Pickup roller stops.

T02-207-01

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2.8 Controlling the Belt Motor

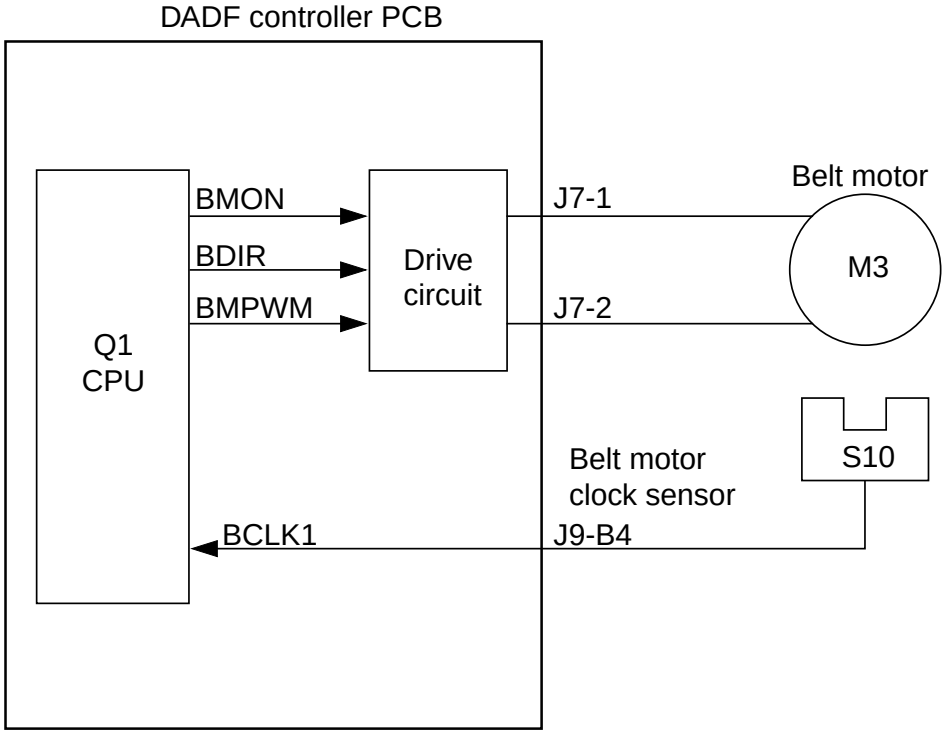
2.8.1 Outline

The following figure shows an outline of the circuit used to control the belt motor:

The belt motor is a DC motor.

The microprocessor (Q1) on the DADF controller PCB sends to the drive circuit the belt motor drive signal (BMON), belt motor rotation direction signal (BDIR), and belt motor rotation speed control signal (BMPWM).

When the belt motor (M3) rotates, the belt motor clock sensor (S10) sends the belt motor clock signal (BCLK1) to the microprocessor (Q1). In response, the microprocessor (Q1) compares the belt motor clock signal (BCLK1) against the rotation speed stored in advance, and varies the belt motor rotation speed control signal (PMPWM) so that the speed will match the setting, ensuring that the belt motor (M3) will always rotate at a specific speed.



F02-208-01

2.8.2 Relationship Between the Feed Belt and the Belt Motor Drive Signal (BMON), Belt Motor Rotation Direction Signal (BDIR), and Belt Motor Rotation Speed Control Signal (BMPWM)

Belt motor drive signal (BMON)	Belt motor rotation direction signal (BDIR)	Belt motor rotation speed control signal (BMPWM)	Feed belt operation
'1'	'1'	Pulse	Feed belt rotates in pickup (CCW) direction.
'1'	'1'	'0'	Feed belt rotates in pickup (CCW) direction by inertia.
'1'	'0'	Pulse	Feed belt rotates in delivery (CW) direction.
'1'	'0'	'0'	Feed belt rotates in delivery (CW) direction by inertia.
'0'	'1'/'0'	'1'/'0'	Feed belt stops.

T02-208-01

2.8.3 Protecting the Belt Motor from Overcurrent

An overcurrnt can occur depending on the type and condition of an original. An overcurrent control circuit is used to protect the power supply circuit against excess loads because of overcurrent while the belt is moving in pickup direction.

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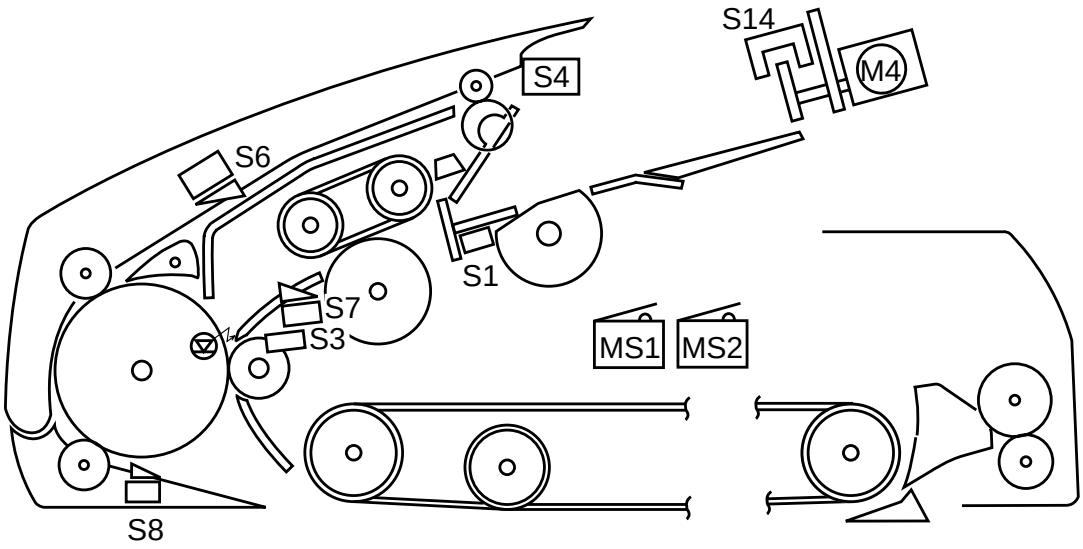
2.9 Detecting a Jam



S1 Original tray sensor
S3 Registration paper sensor
S4 Upper cover sensor
S6 Delivery sensor
S7 Pickup sensor
S8 Reversal sensor
S14 Recirculation sensor
MS1 DADF open/close sensor
MS2 Upper cover switch

F02-209-01

The microprocessor on the DADF controller PCB is programmed in advance to check for a jam at such times as needed, and a jam is identified in reference to the presence of an original over a specific sensor.

T02-209-01 shows the conditions used to identify a jam.

When a jam is identified, the machine communicates its nature to its host copier, which in response shows a corresponding code in its service mode.

	Jam type	Sensor	Description	Code
Pickup	Extracted	S1, S7	The sensor (S7) has not detected the leading edge of an original 1500 msec after the pickup motor (M1) turned on and, in addition, the sensor (S1) is not on.	01H
	Pickup delay	S7	The sensor (S7) has not detected the leading edge of an original 1500 msec after the pickup motor (M1) turned on.	02H
	Registration delay	S3, S7	The sensor (S3) has not detected the leading edge of an original 350 msec after the sensor (S7) detected the leading edge of an original.	03H
	Double-feeding	S3	The sensor (S3) remains on even when the 1st original has been placed on the copyboard glass.	06H
	Original	S3	The sensor (S3) has not detected the leading edge of an original at the start of pickup.	08H

T02-209-01

	Jam type	Sensor	Description	Code
Reversal	Reversal delay 1	S8	During original reversal or delivery, the sensor (S8) has not detected the leading edge of an original 140 mm or 225 msec after the belt motor (M3) started to rotate in CW direction.	11H
	Reversal stationary	S8	During original reversal or delivery, the sensor (S8) has not detected the trailing edge of an original after a check on a reversal delay.	12H
	Reversal delay 2	S8	During original delivery pickup, the sensor (S8) has not detected the preceding original 50 mm after the belt motor started to rotate in CCW direction; i.e., the original to be delivered is returned to the copy-board glass together with the original that has just been picked up.	13H
	Reversal residual paper	S8	During original reversal, the sensor (S8) has detected an original.	20H
	Reversal pickup delay	S3	During original reversal, the sensor (S3) has not detected the leading edge of the original that should arrive after reversal 100 mm or 300 msec after the sensor (S8) detected an original.	21H
	Reversal pickup stationary	S3	The sensor (S3) has not detected the trailing edge of an original “original size + 180 mm” after the sensor (S8) turned on.	23H
Delivery	Delivery delay	S6	During original delivery, the sensor (S6) has not detected an original 100 mm or 250 msec after the sensor (S8) detected the leading edge of an original.	41H
	Delivery stationary	S6	The sensor (S6) has not detected the trailing edge of an original 100 mm or 250 msec after a check was made on reversal stationary.	42H
	DADF open	MS1	The DADF has been opened while in operation.	81H
	Upper cover open	MS2, S4	The upper cover has been opened while in operation.	82H
	Original circulation fault	S1	The sensor (S1) has not detected the original delivered to the original tray.	83H
	Residual jam	S6, S3, S8, S7	At the start of original pickup, the sensor S6, S3, or S8 (also S7 if the paper stopper plate is up) has detected an original.	84H
	Residual original	S8	An original has been detected on the copyboard glass when picking up the first original (1st side).	88H
	Recirculating lever idle swing (2nd or subsequent original)	S14	The recirculating lever swung idly without coming into contact.	89H

T02-209-02

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	Jam type	Sensor	Description	Code
Delivery	Delivery failure	S3, S6	During delivery in bottom separation pickup mode, the stop mechanism has failed (e.g., the original that has been picked up is longer than the one being delivered).	8AH
	DADF open	MS1	When the host copier is at rest (e.g., after running out of paper), the machine has been opened.	91H
	Upper cover open	MS2, S4	When the host copier is at rest (e.g., after running out of paper), the upper cover has been opened.	92H
	Recirulating lever idle rotation	S13	During original pickup, the recirulating lever has moved away from the existing original.	93H

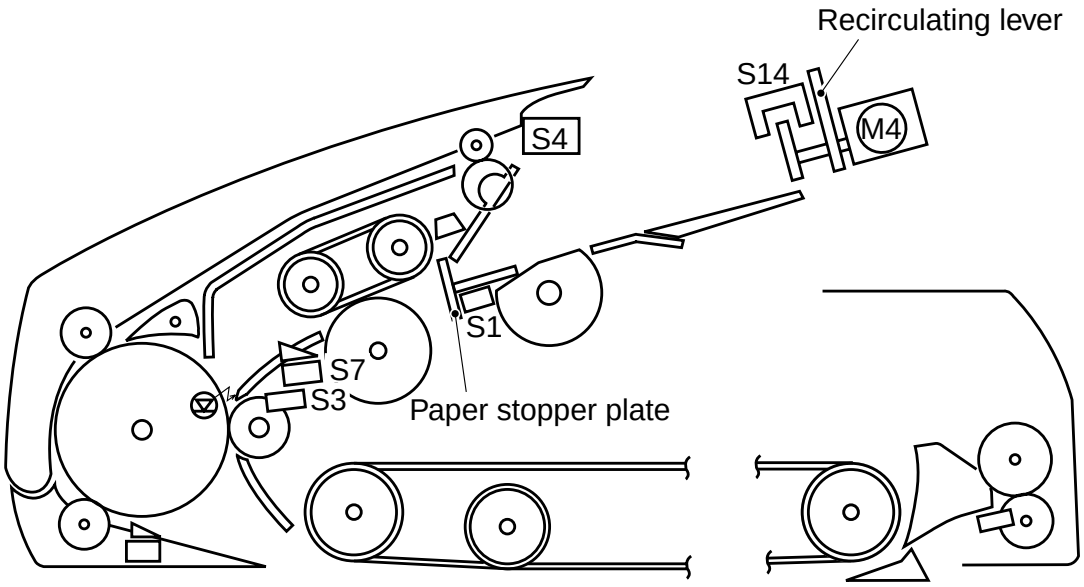
T02-209-03

1. Response to a Jam
   The machine will immediately stop its operation as soon as any of the jams shown in the foregoing table is detected.
2. Jam Rest
   In the case of a pickup delay jam, the machine will be reset when the originals are removed from the original tray. Otherwise, remove the originals from the original tray, remove the jam from inside the machine, and open and close the machine to reset it.

REF.

As a rule, the detection of a condition caused by the first original is identified as “improperly placed original,” and jams are identified starting with the second original.

2.10 Improperly Placed Original



S1 Original tray paper sensor
S3 Registration paper sensor
S7 Pickup sensor
S14 Recirculation sensor

F02-210-01

If improperly placed, an original may jam or may tear. To prevent such a problem, the machine checks originals for proper placement. The microprocessor on the DADF controller PCB is programmed to make a check at specific timing, and improper placement is identified in reference to the presence of an original over a specific sensor.

When an original is found to be improperly placed, the machine will communicate the fact to its host copier, which indicates it in its service mode.

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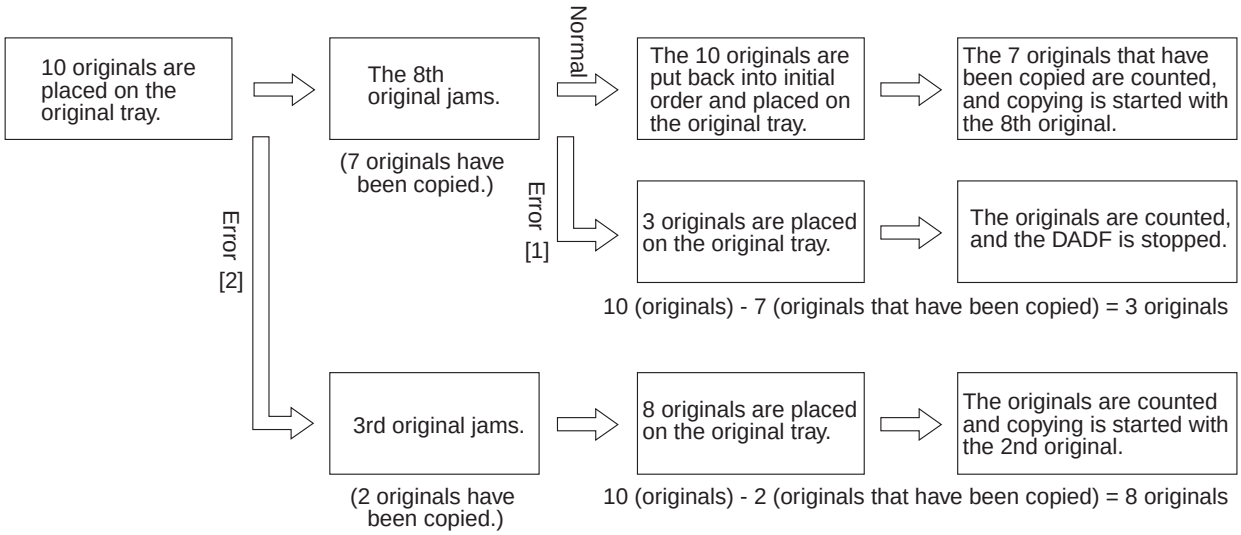
Nature of error	Sensor	Description	RF operation	Code
Recirculating lever idle swing	S11	The recirculating lever has swung idly without coming into contact with an original immediately after the recirculation motor (M4) turned on.	The DADF stops operation immediately upon detection.	01H
Pickup fault	S7	During pickup, the sensor (S7) does not detect the leading edge of an original within 1500 msec.	The separation belt, feed roller, and pickup roller stop immediately. The DADF stops operation after the copy of the preceding original has been discharged.	03H
Paper stopper plate override	S7	An original has been placed over the paper stopper plate.	The DADF stops operation immediately upon detection.	05H
Different number of originals after jam removal	S7	The following is true after jam removal: number of original copied > number of originals on original tray	The DADF stops operation immediately upon detection.	11H
Wrong number of originals	S3	The recirculating lever fails to drop to the original tray, not being able to identify the last original. Ref.: Normally, the original tray can hold up to 50 sheets of A5, STMT, A4, B5, or LTR or 25 sheets of A3, B4, 279×432 mm (11”×17”), or LGR.	The DADF counts to 100 and then stops.	12H
Extraction	S3	The recirculating lever has dropped to the original tray in the middle of handling an original.	The DADF stops operation immediately upon detection.	13H
Wrong original size	S3	The detected size of an original is a non-default size.	The DADF stops operation immediately upon detection.	14H
Wrong original size or mixed sizes*	S3	The size of an original that has been picked up is different from the size of the 1st original.	The DADF stops operation immediately upon detection.	15H

*To reset, remove the originals from the original tray and open/close the DADF.

T02-210-01

Caution:
EX:


10 originals are placed on the original tray.
The 8th original jams.
(7 originals have been copied.)
Normal
Error [1]
Error [2]
The 10 originals are put back into initial order and placed on the original tray.
The 7 originals that have been copied are counted, and copying is started with the 8th original.
3 originals are placed on the original tray.
The originals are counted, and the DADF is stopped.
10 (originals) - 7 (originals that have been copied) = 3 originals
3rd original jams.
(2 originals have been copied.)
8 originals are placed on the original tray.
The originals are counted and copying is started with the 2nd original.
10 (originals) - 2 (originals that have been copied) = 8 originals

F02-210-02

When a jam occurs, the host copier knows how many originals it has copied. It sends the information to the machine so that the machine may forward the originals that have been copied and start placing originals that have not been copied on the copyboard glass. It is important to remember that the copying sequence will be affected unless the number of originals is the same both before and after jam removal.

In the case of error [1] above, the machine and its host copier will stop operation and indicate the presence of a fault; in the case of error [2], however, they continue to operate, requiring care.

2.10.1 Resetting

The machine may be reset by removing all originals from the original tray. Some host copiers indicate a message. Be sure to check the message and follow the instructions, if any, to correct the placement of originals.

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3 Power Supply

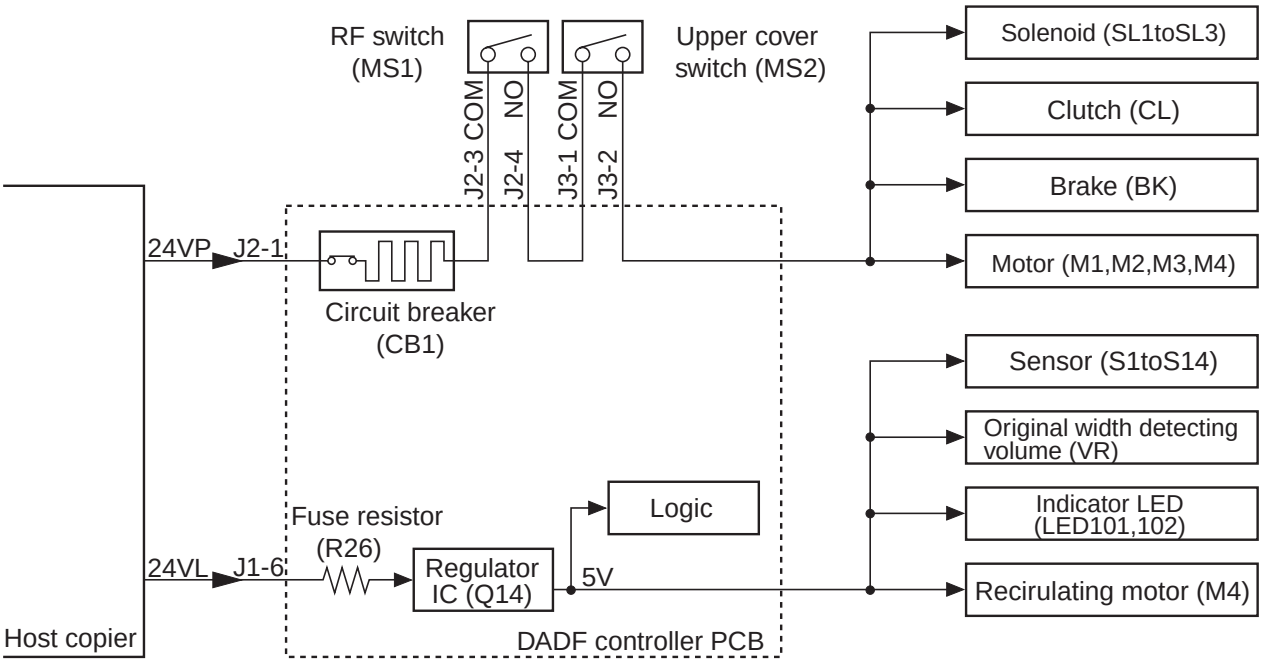
3.1 Outline

The following figure shows an outline of the power supply system.

The machine is supplied with two channels of 24 V power (24 VP, 24 VL).

24 VP is mainly used by loads, and is cut off when the machine or its top cover is opened. The circuit breaker (CB1) turns on in response to an overcurrent, thereby cutting off the power to protect the circuit.

24 VL is first converted to 5 V by the regulator, and is used by logic elements and sensors. The fuse resistor (R26) is designed to melt in response to an overcurrent in the circuit, thereby cutting off the power to protect the circuit.



F02-301-01

CHAPTER 3

MECHANICAL SYSTEMS

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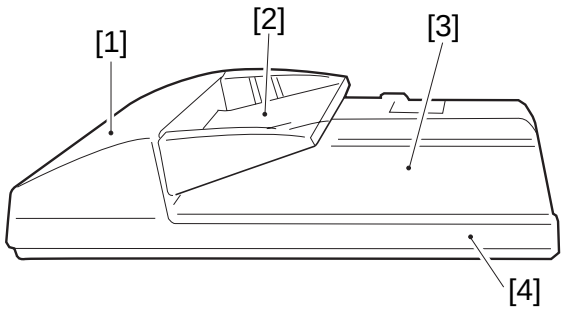
1 Basic Construction

1.1 External Covers

[1] Upper cover
[2] Original tray
[3] Body cover
[4] Body front cover

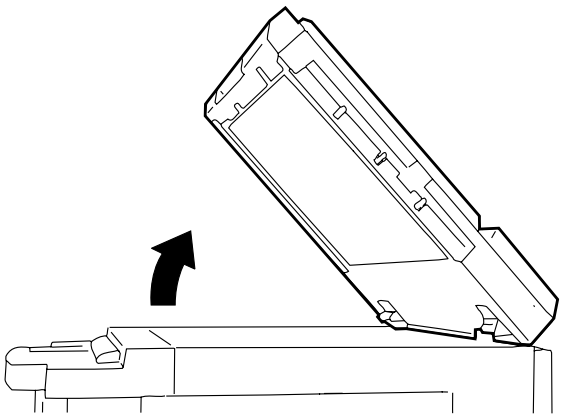


F03-101-01

Remove the covers as follows when cleaning, inspecting, or repairing the inside of the machine.

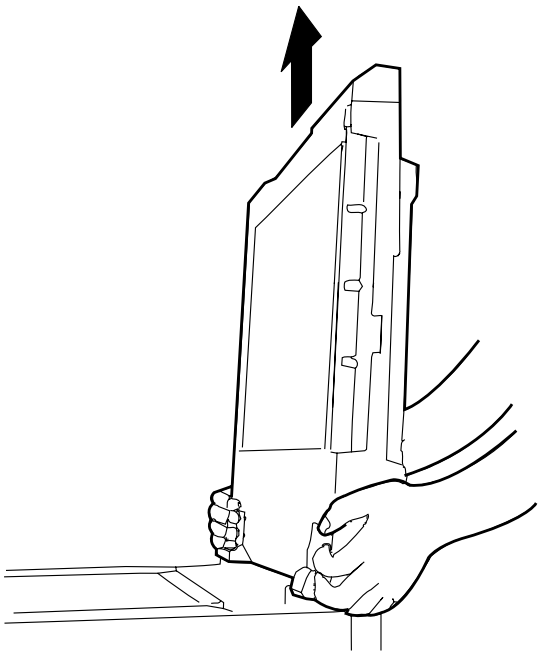
1.1.1 Detaching the DADF

1) Turn of the host copier.
2) Disconnect the machine's communication cable from the host copier.
3) Fully open the machine.



F03-101-02

4) Move to the rear of the host copier, and lift the machine upright to detach.



F03-101-03

REF.

The machine's hinge assembly is equipped with a locking mechanism to prevent displacement, requiring you to fully open the machine when detaching it from its host copier.
When lifting it, avoid holding the delivery assembly; otherwise, delivery faults can occur. (Hold it as indicated in the figure.)

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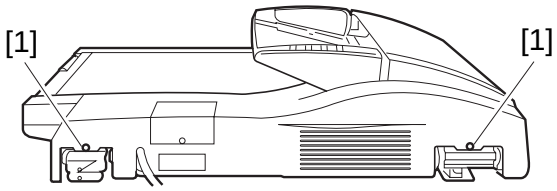
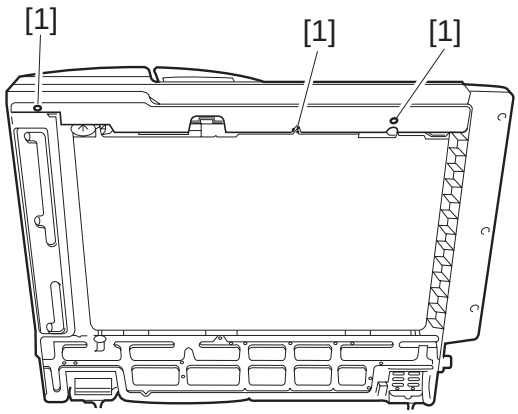
1.1.2 Removing the Covers

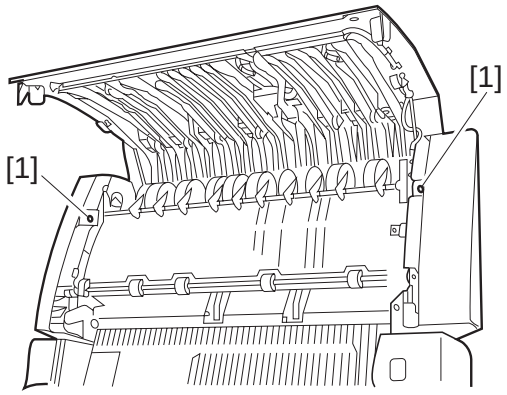
1) Remove the seven mounting screws [1] used to hold the covers in place.



F03-101-04



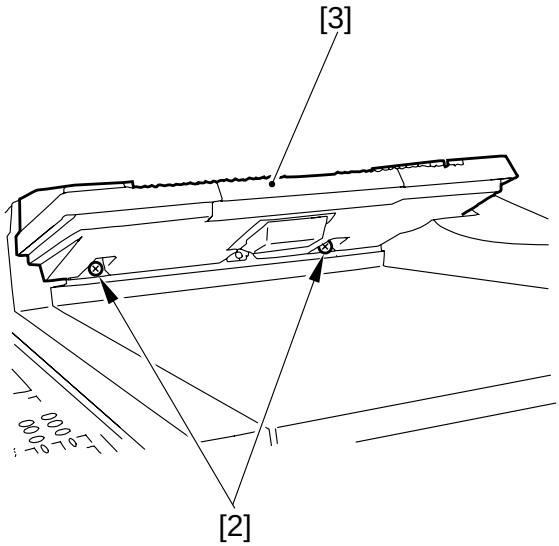
F03-101-05



F03-101-06

2) Remove the two mounting screws [2], and detach the original tray [3].

The original tray is connected with a cable. Take care not to damage the cable during the work.



F03-101-07

3) While avoiding the original tray, detach the main cover and the front cover.

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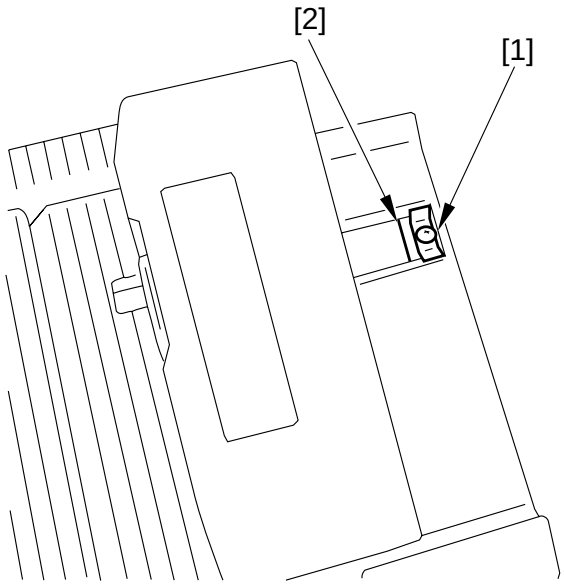
1.1.3 Side Guide Lock

The machine's size guide is equipped with a side guide to prevent it from opening wider than A4/A3 size (297 mm).

If the original is larger than 297 mm, the side guide lock may be disengaged to accommodate an original width of up to 305 mm.

1) Loosen the screw [1], and free the side guide lock [2].



F03-101-08

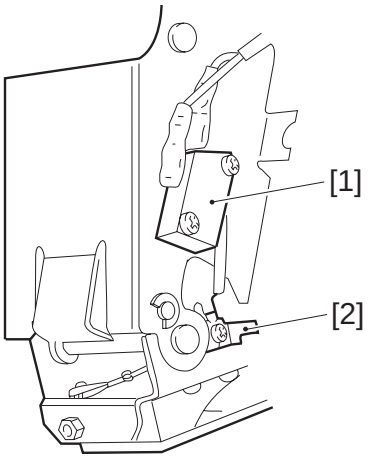
Be sure to adjust the side guide to the original before making a copy. Otherwise, the original will tend to move askew.

1.2 Switches

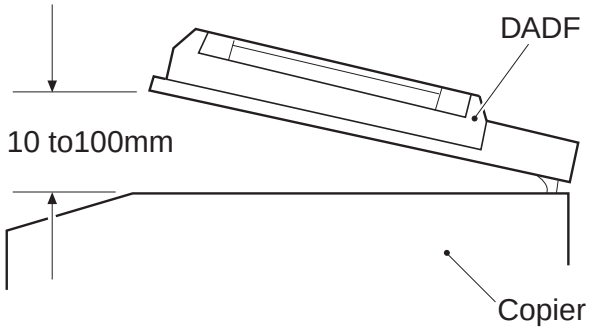
The machine is equipped with two microswitches (DADF switch MS1 and upper cover open/close switch MS2) to prevent operation while it or its upper cover is open.

1.2.1 Adjusting the DADF Switch (MS)

1) Remove the body cover.
2) Open and close the machine; then, adjust the retaining plate [2] so that the DADF switch (MS1) [1] turns on and off when the machine's edge is between 10 and 100 mm from the copyboard glass.



F03-102-01



F03-102-02

1.2.2 Upper Cover Switch (MS2)

1) Check to make sure that both front and rear upper cover switches turn on when the upper cover is closed.

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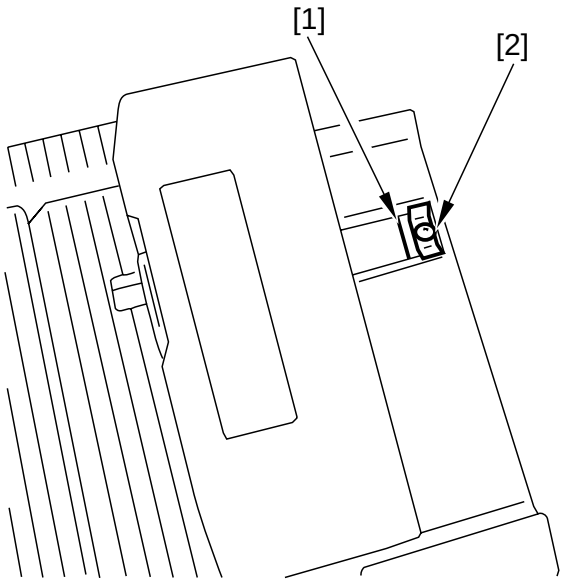
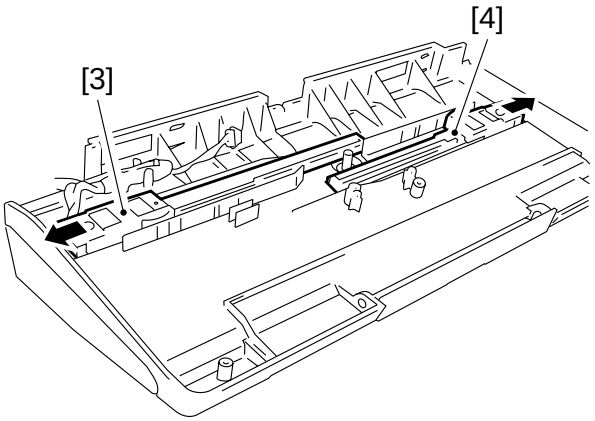
1.2.3 Mounting the Original Width Detecting Volume

1) Loosen the screw [2], and free the side guide lock [1].



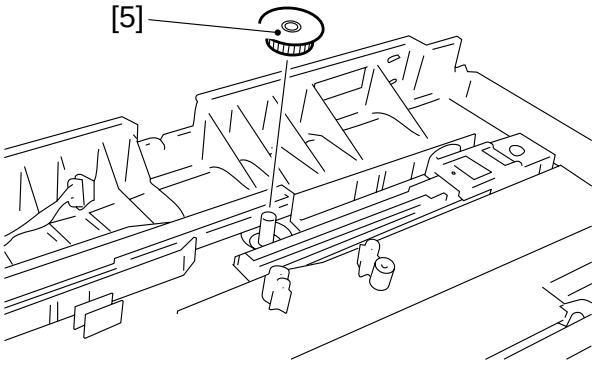
F03-102-03

2) Fully open the side guides at the rear [3] and at the front [4].



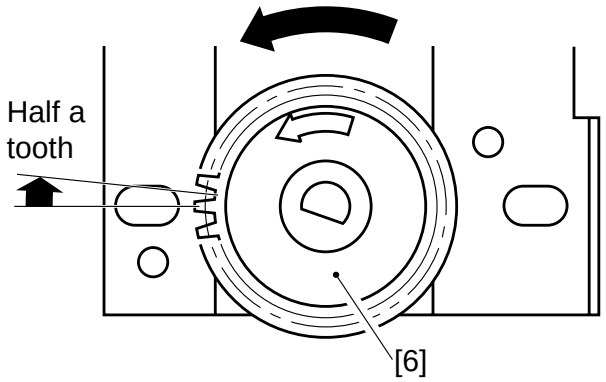
F03-102-04

3) Mount the gear [5].



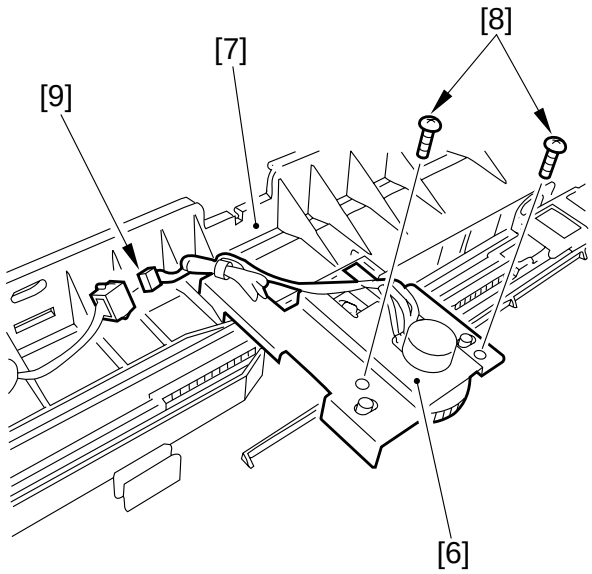
F03-102-05

4) Fully turn the original detecting volume [6] in the direction of the arrow; then, turn it in the opposite direction over a distance of half a tooth as shown in the figure.



F03-102-06

5) Holding the original width detecting volume [6] as shown in step 4), mount it to the original tray [7] by securing it with two screws [8]; then, connect the connector [9].



F03-102-07

6) Engage the side guide lock freed in step 1), and execute original width detecting volume adjustment. (For details of instructions, see p. 5-13.)

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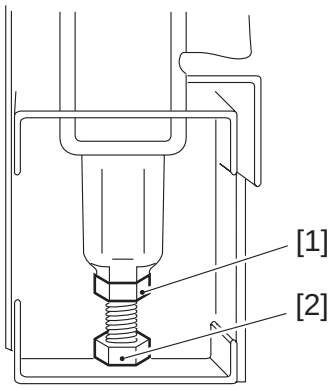
1.3 Adjusting the Height of the Machine

1) Remove the host copier's rear side plate. Loosen the lock nut [1], and turn the height adjusting screw [2] so that the rear rubber feet (left, right) are 0.2 ±0.1 mm from the side size plate of the copyboard glass when the machine is closed.



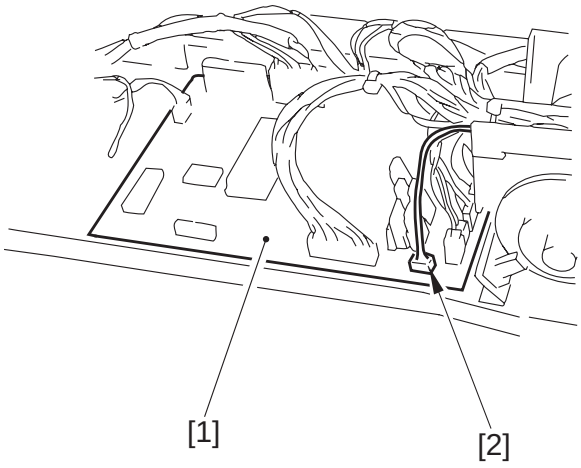
F03-103-01

2) After adjustment, check to make sure that the front rubber feet (left, right) are firmly in contact with the copyboard glass.

2 Drive System

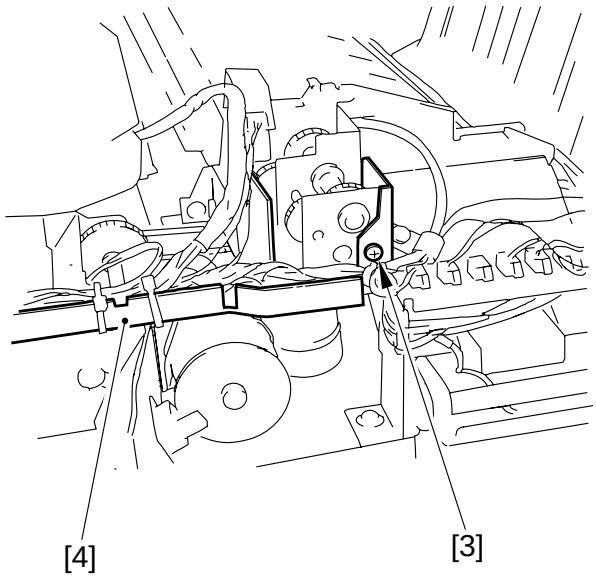
2.1 Removing the Pickup Motor Unit

1) Remove the main cover.
2) As necessary, remove the tie-wraps.
3) Disconnect the connector J12 [2] of the DADF controller PCB [1].



F03-201-01

4) Remove the screw [3], and disconnect the cable guide [4].



F03-201-02

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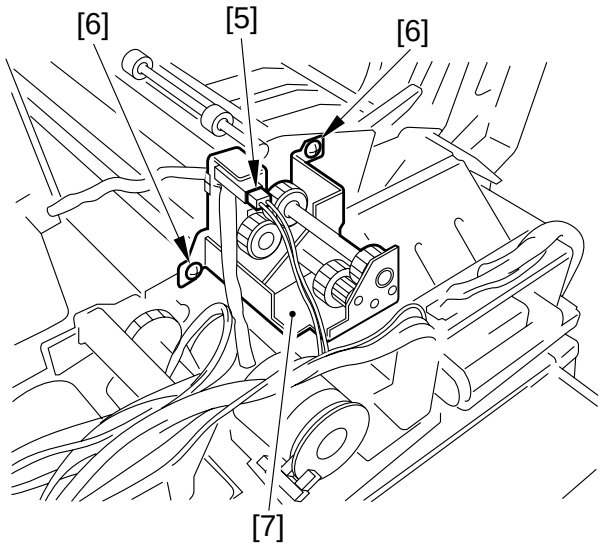
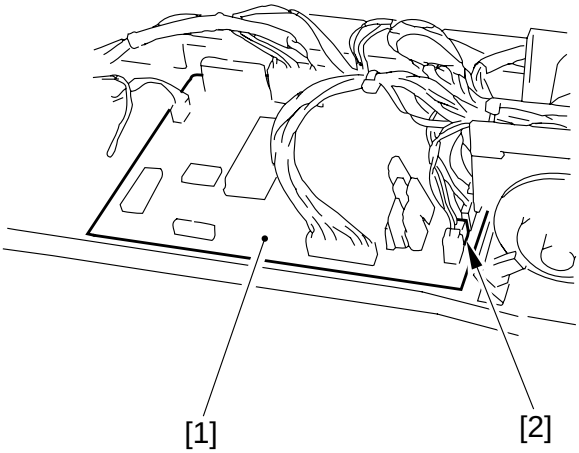
5) Disconnect the connector [5] of the upper cover sensor (S4).
6) Remove the two mounting screws [6], and detach the pickup motor unit [7].



F03-201-03

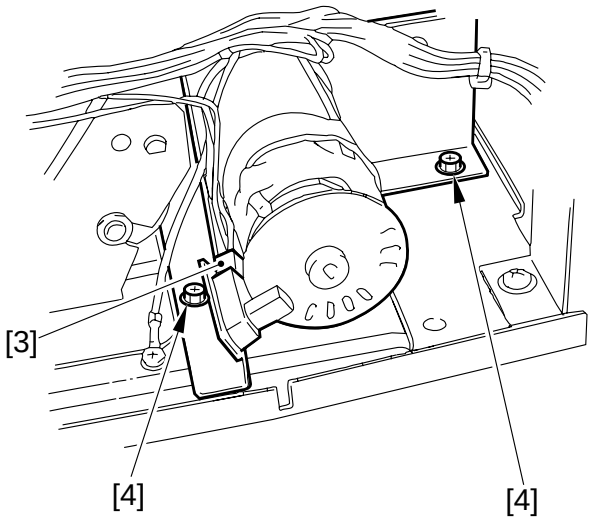
2.2 Removing the Feed Motor Unit

1) Remove the pickup motor unit.
2) As necessary, remove the tie-wraps.
3) Disconnect the connector J11 [2] of the DADF controller PCB [1].



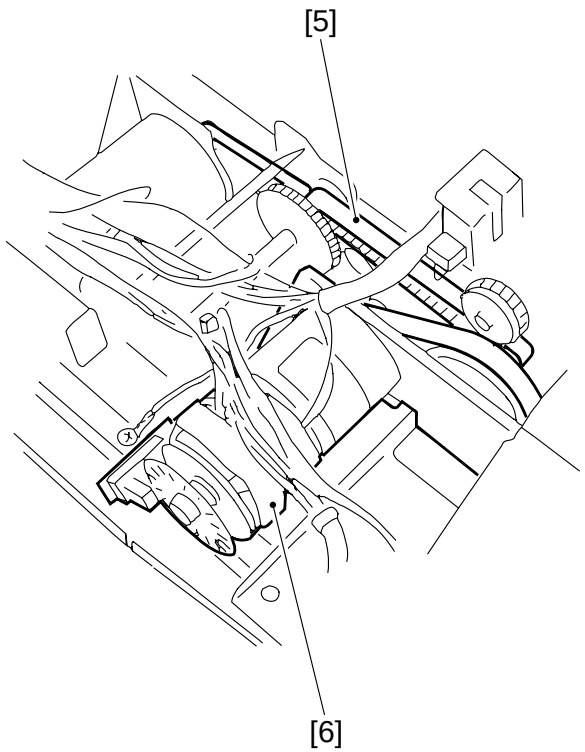
F03-202-01

4) Disconnect the connector [3] of the feed motor clock sensor (S9), and remove the two screws [4].



F03-202-02

5) Detach the two drive belts [5], and detach the feed motor unit [6].



F03-202-03

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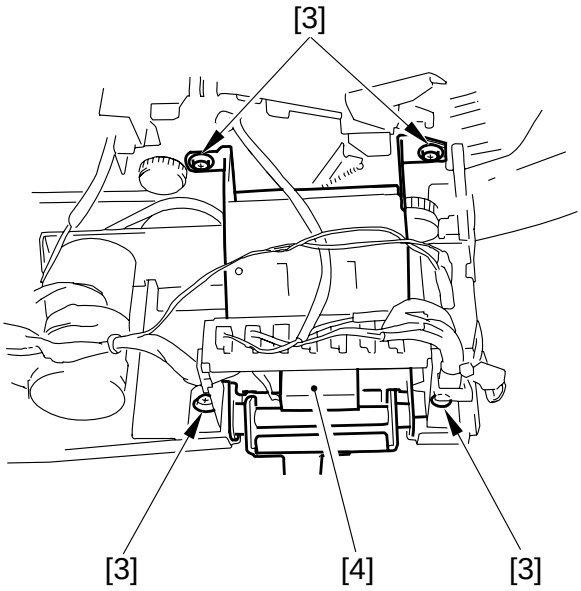
2.3 Belt Motor Unit

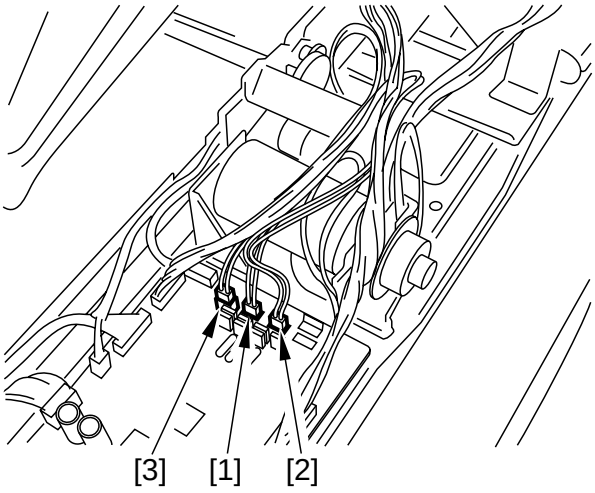
2.3.1 Removal

1) Detach the machine from its host copier.
2) Remove the feed motor unit.
3) As necessary, remove the tie-wraps.
4) Remove the four screws [3], and detach the right hinge unit [4].



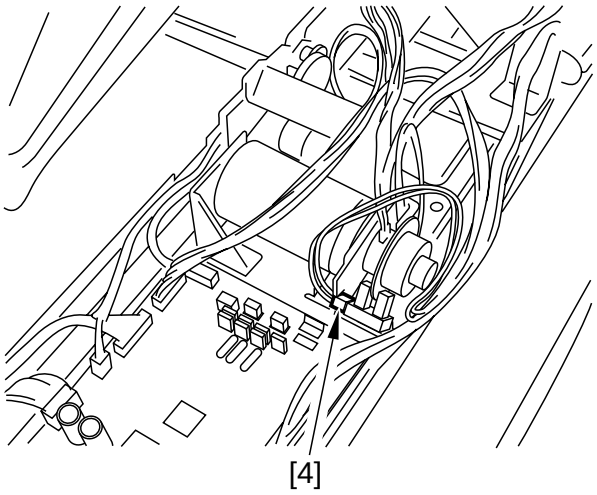
F03-203-01

5) Disconnect the connectors J6 [1], J7 [2], and J13 [3] of the DADF controller PCB.



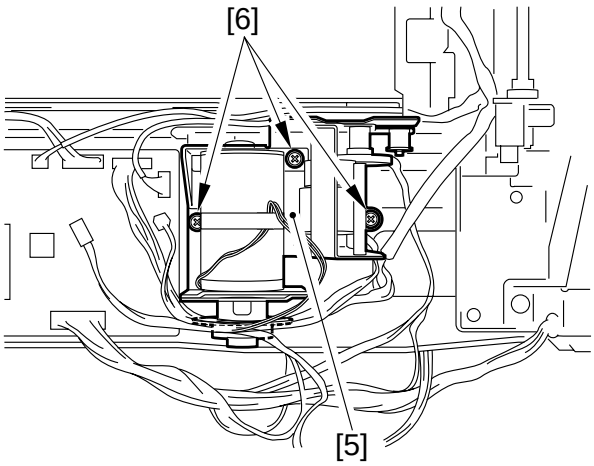
F03-203-02

6) Disconnect the connector [4] of the belt motor clock sensor (S10).



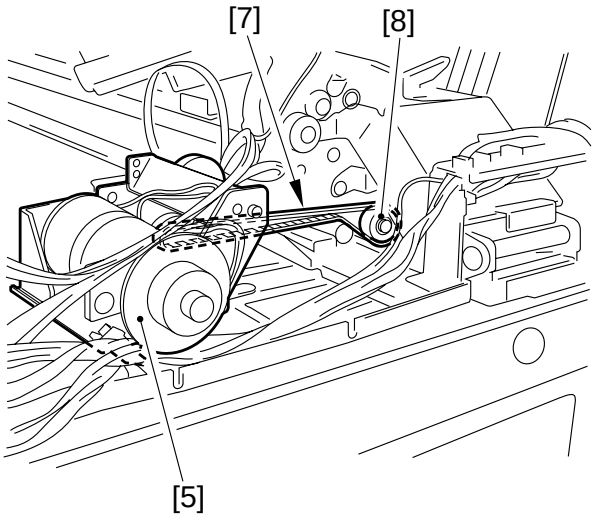
F03-203-03

7) Mark the position of the belt motor unit [5] on the machine; then, remove the three screws [6].



F03-203-04

8) Detach the timing belt [7] from the side of the feed belt drive roller [8], and detach the belt motor unit [5].



F03-203-05

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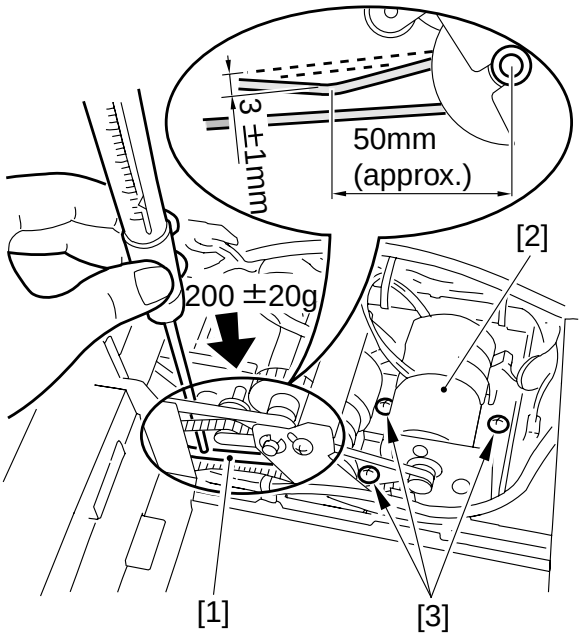
2.3.2 Making Adjustments

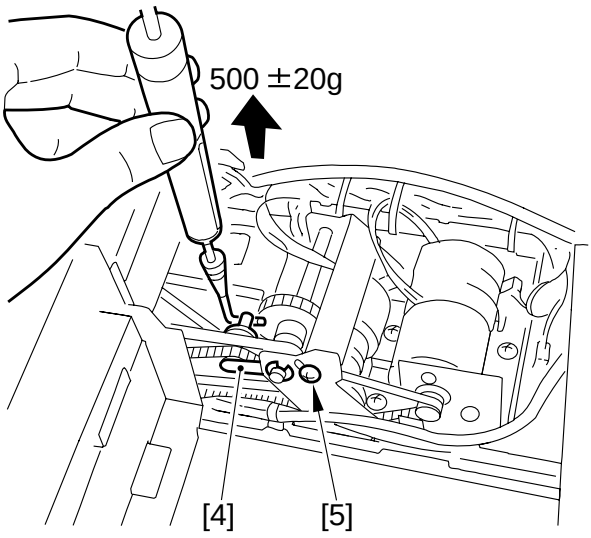
1) Secure the belt motor unit [2] in place with three screws [3] so that the displacement under a force of 200 ±20 g is 3 ±1mm when the timing belt [1] is pressed.



Gauge spring: capable of measuring a force of 600 g (tool No.: CK-0058).

F03-203-06

2) Push up the belt tensioner [4] under a force of 500 ±50 g, and fix it in place with a screw [5].

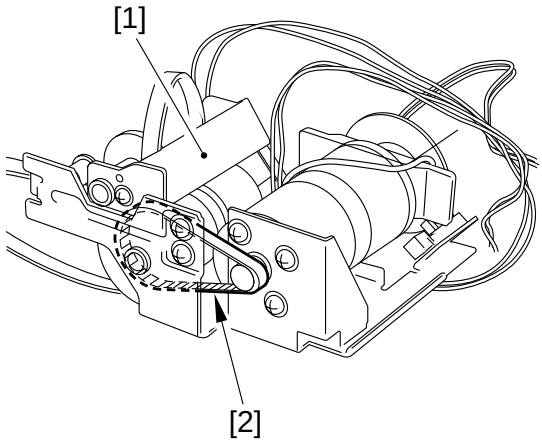


Gauge spring: capable of measuring a force of 600 g (tool No.: CK-0058).

F03-203-07

2.4 Removing the Clutch Unit

1) Remove the clutch motor unit [1].
2) Detach the drive belt [2].



F03-204-01

3) Remove the E-ring [3].

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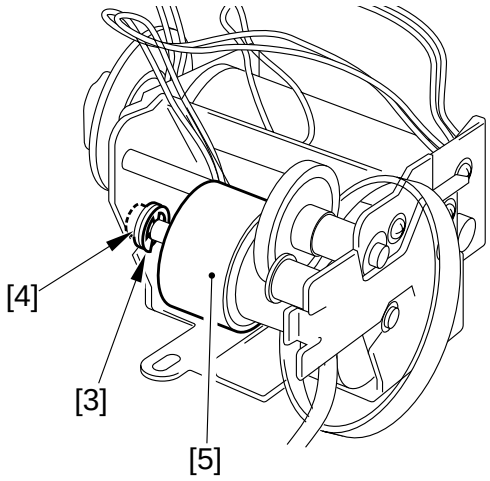
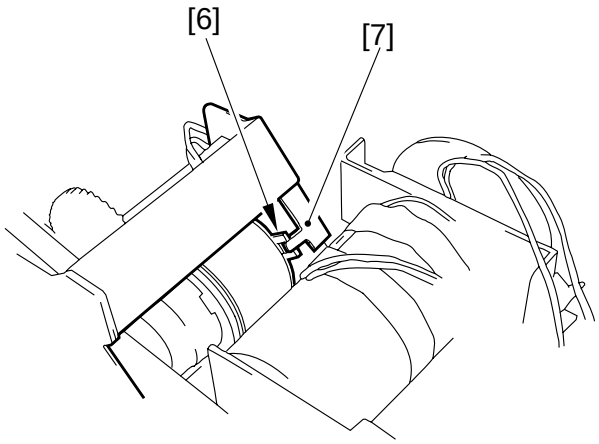
4) Shift the bush [4], and detach the clutch unit [5].



F03-204-02

When mounting the clutch unit, make sure that the clutch stop ring [6] and the stopper [7] of the mounting base engage.

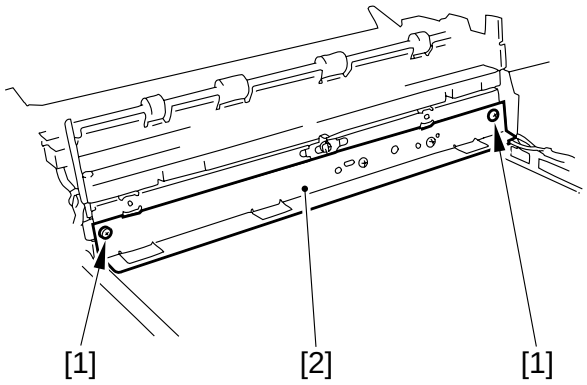


F03-204-03

3 Feed System

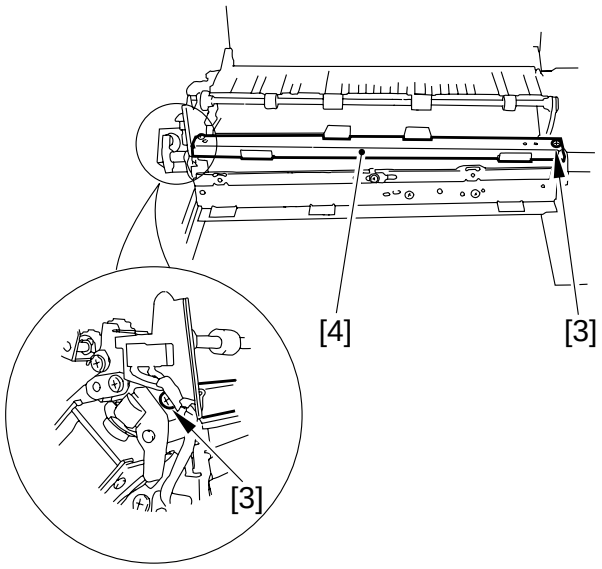
3.1 Pickup Roller Unit

1) Remove the main cover.
2) Remove the two screws [1], and detach the original tray mounting plate [2].



F03-301-01

3) Remove the two screws [3], and detach the original inlet guide plate [4].



F03-301-02

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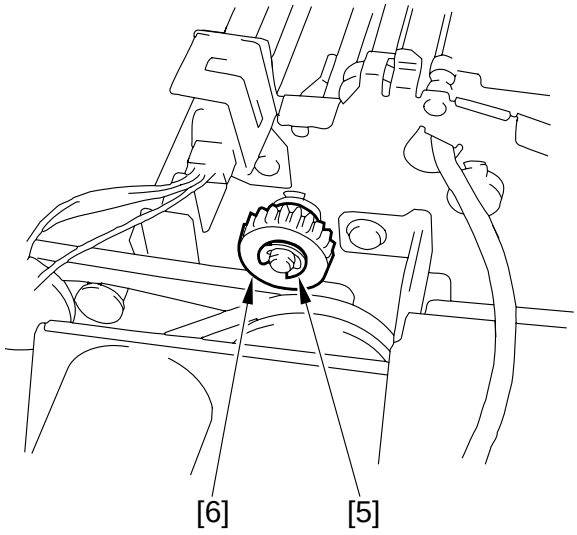
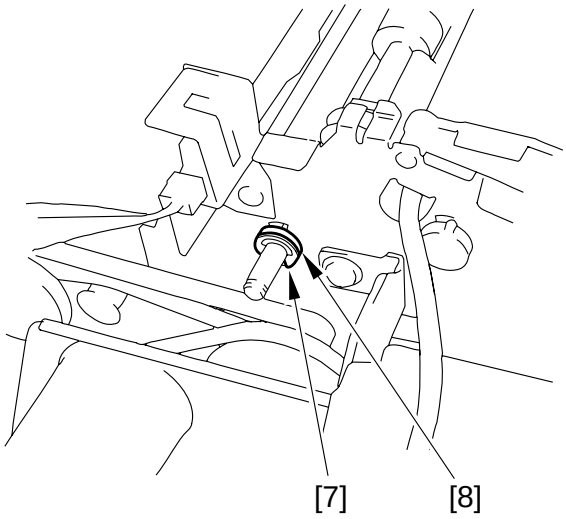
4) Remove the pickup motor unit.
5) Remove the E-ring [5], and detach the gear [6].
(Take care not to lose the pin.)



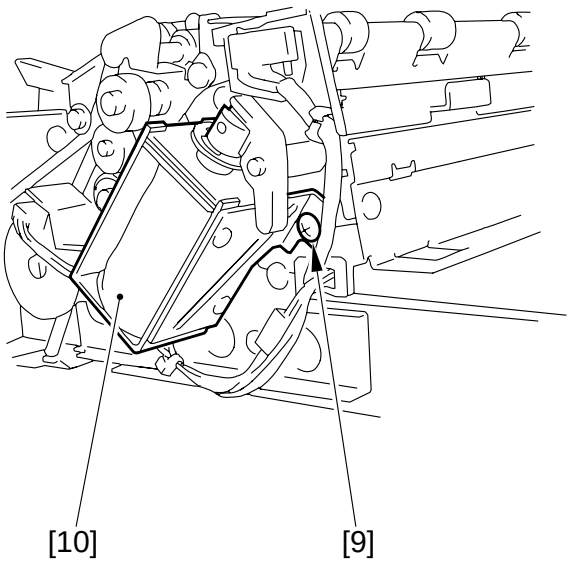
F03-301-03

6) Remove the E-ring [7], and detach the bush [8].



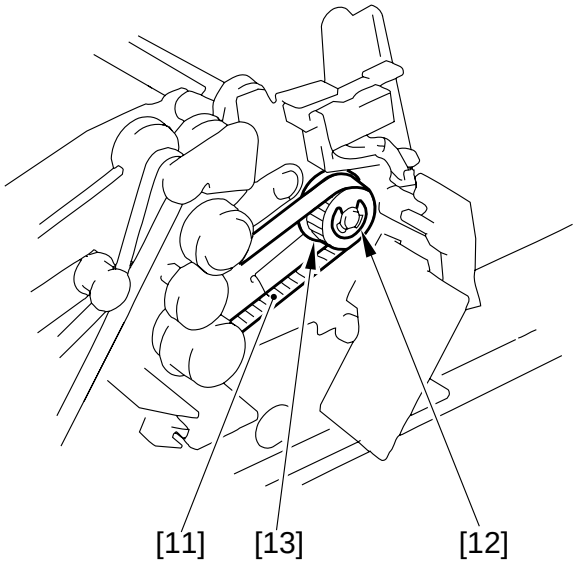
F03-301-04

7) Remove the screw [9], and detach the paper retaining solenoid [10].



F03-301-05

8) Detach the timing belt [11], and remove the E-ring [12] and the gear [13]. (Take care not to lose the pin.)



F03-301-06

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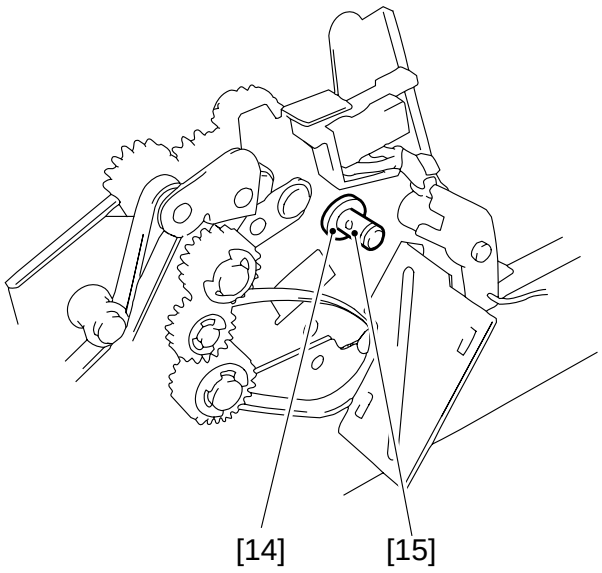
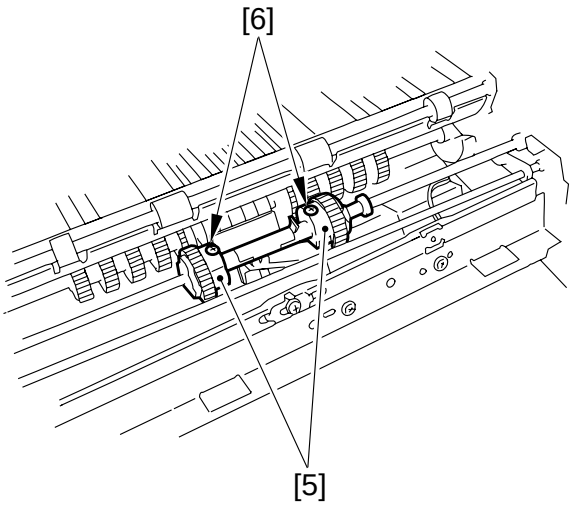
9) Remove the bush [14], and detach the pickup roller unit [15].



F03-301-07

3.2 Pickup Roller

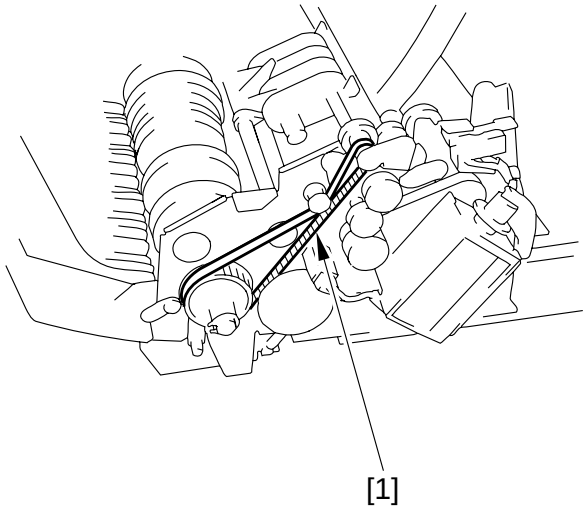
1) Open the upper cover.
2) Turn the pickup roller [5] until it is as shown in the figure; then, remove the screw [6], and detach the pickup roller [5].



F03-302-01

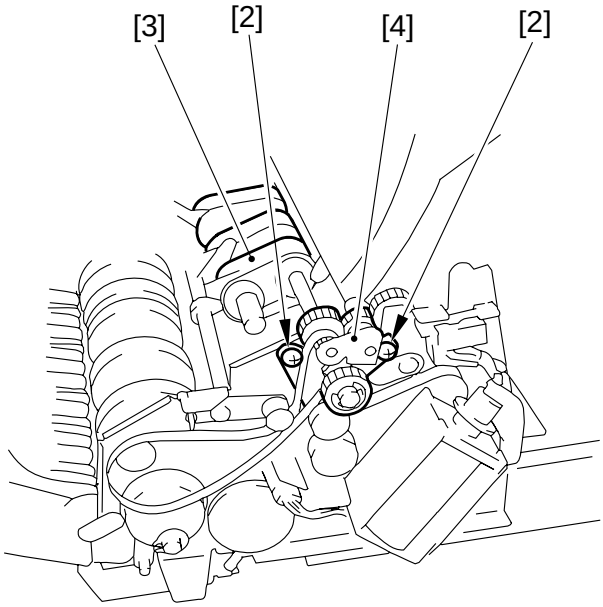
3.3 Separation Belt Unit

1) Remove the front cover.
2) Open the upper cover.
3) Detach the reversing roller drive belt [1].



F03-303-01

4) Remove the two screws [2], and detach the separation belt unit [3] together with the fixing plate [4].



F03-303-02

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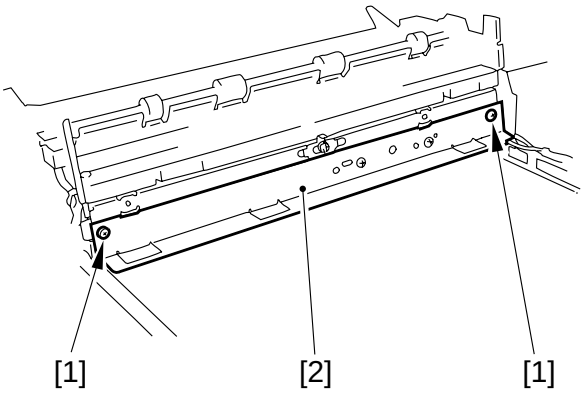
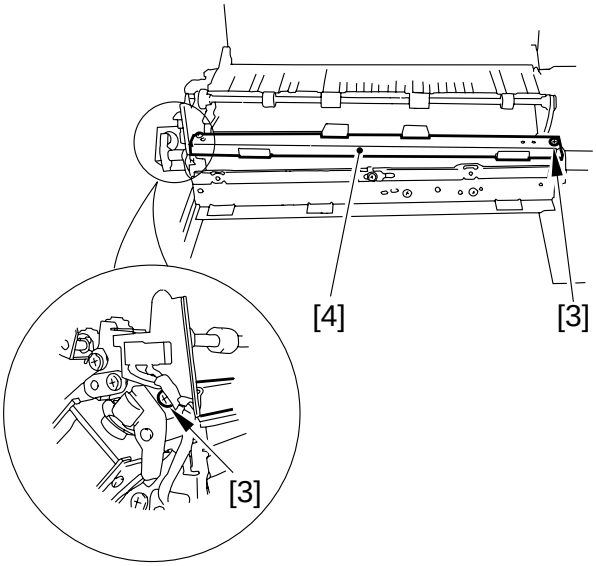
3.4 Feed Roller Unit

1) Remove the main cover.
2) Remove the two screws [1], and detach the original tray mounting plate [2].



F03-304-01

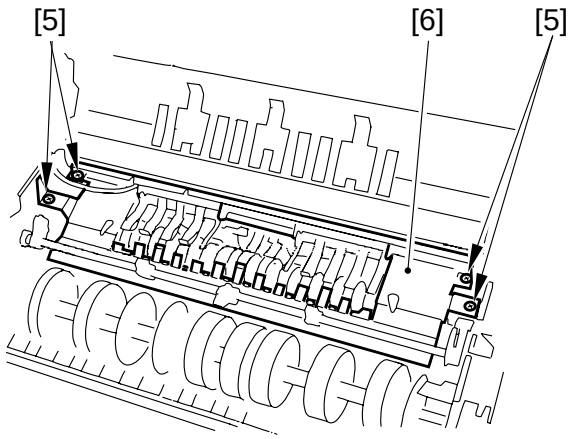
3) Remove the two screws [3], and detach the original inlet guide plate [4].



F03-304-02

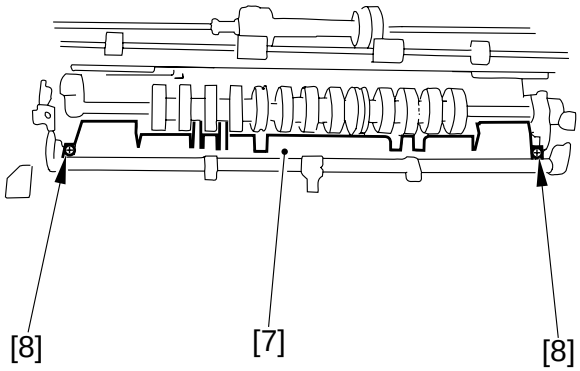
4) Detach the separation belt unit.

5) Remove the four screws [5], and detach the separation guide plate [6].



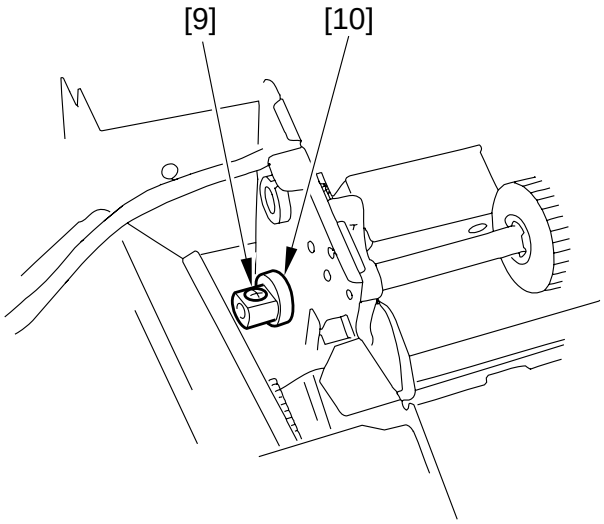
F03-304-03

6) Remove the two screws [8], and detach the inside guide plate [7].



F03-304-04

7) Remove the screw [9], and detach the stopper [10].



F03-304-05

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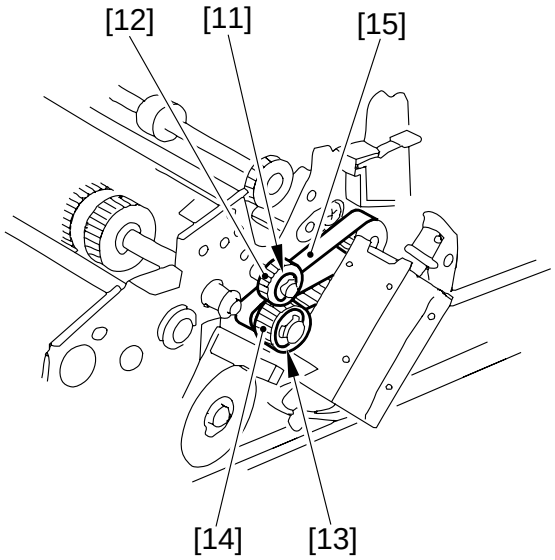
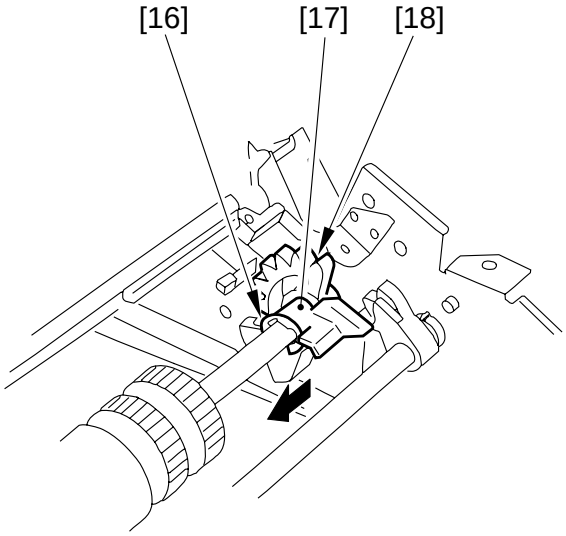
8) Remove the E-ring [11], and detach the idler gear [12].
9) Remove the E-ring [13], and detach the gear [14] and the timing belt [15]. (Take care not to lose the pin.)



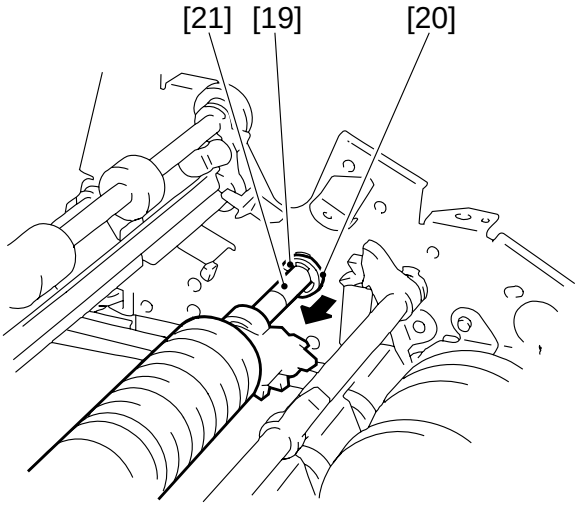
F03-304-06

10) Remove the E-ring [16], and shift the arm [17] and the gear [18] in the direction of the arrow.



F03-304-07

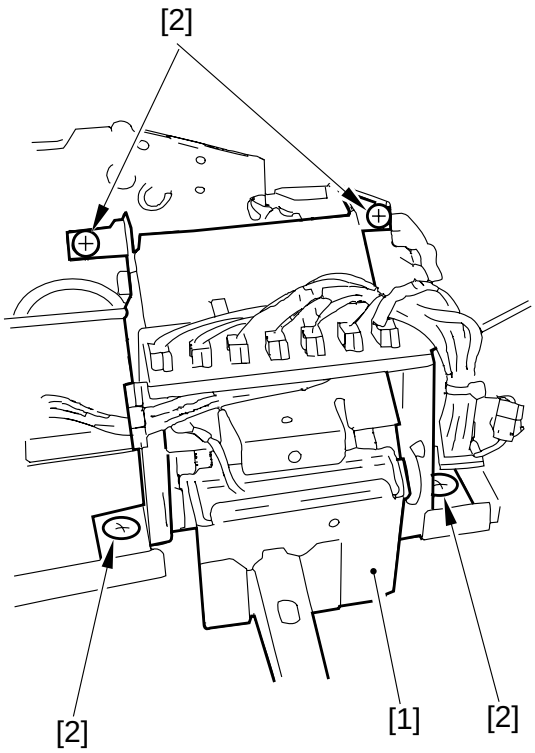
11) Remove the E-ring [19], and shift the bush [20]; in the direction of the arrow; then, detach the feed roller unit [21].



F03-304-08

3.5 Registration Roller

1) Remove the main cover.
2) Detach the machine from its host copier.
3) Remove the feed roller unit.
4) Remove the pickup motor unit.
5) Remove the four screws [2], and detach the right hinge unit [1].



F03-305-01

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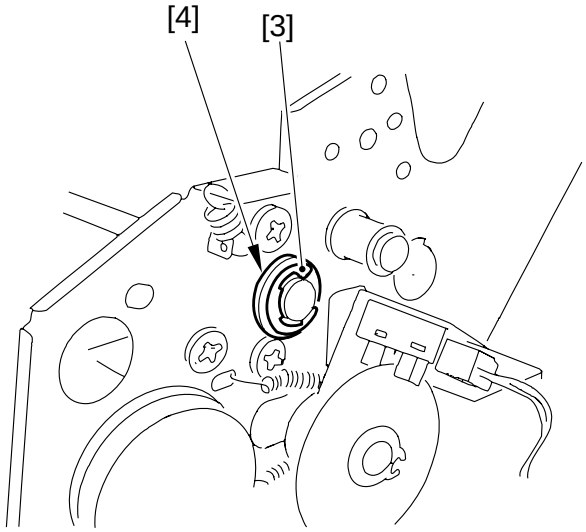
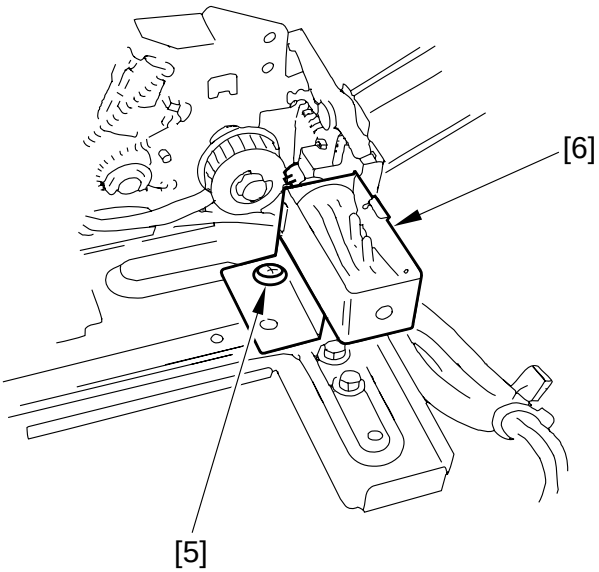
6) Remove the E-ring [3], and detach the bush [4].



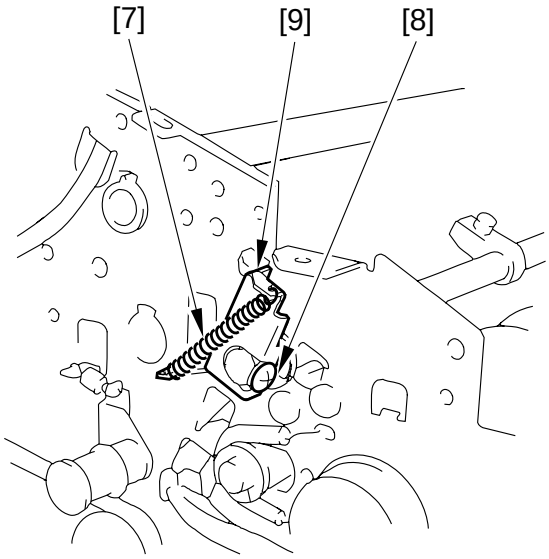
F03-305-02

7) Remove the screw [5], and detach the solenoid base [6].



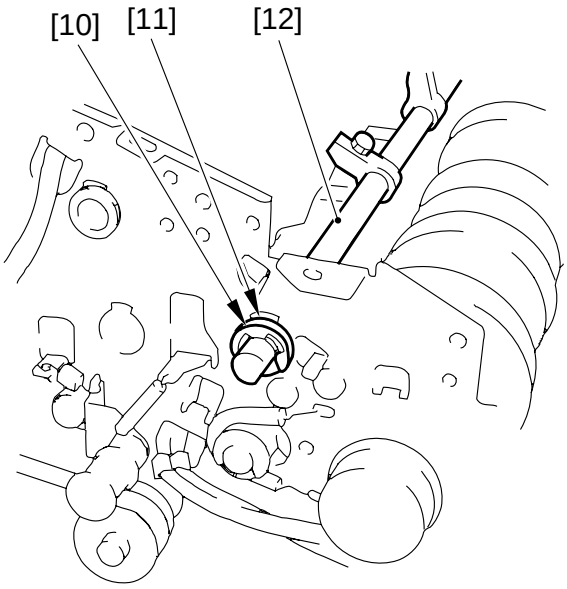
F03-305-03

8) Remove the spring [7] and the screw [8]; then, detach the arm [9].



F-3-305-04

9) Remove the E-ring [10] and the bush [11]; then, detach the link arm shaft [12].



F03-305-05

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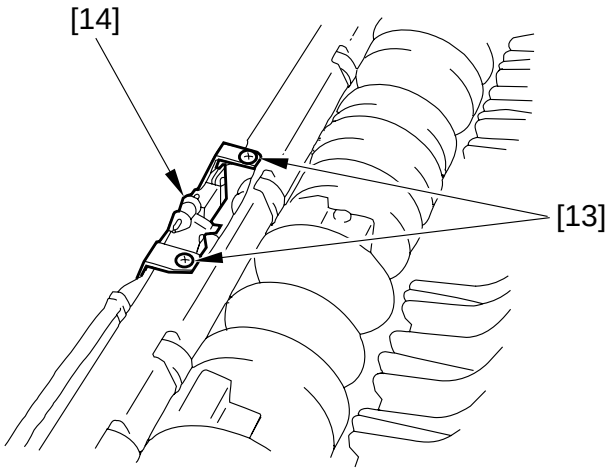
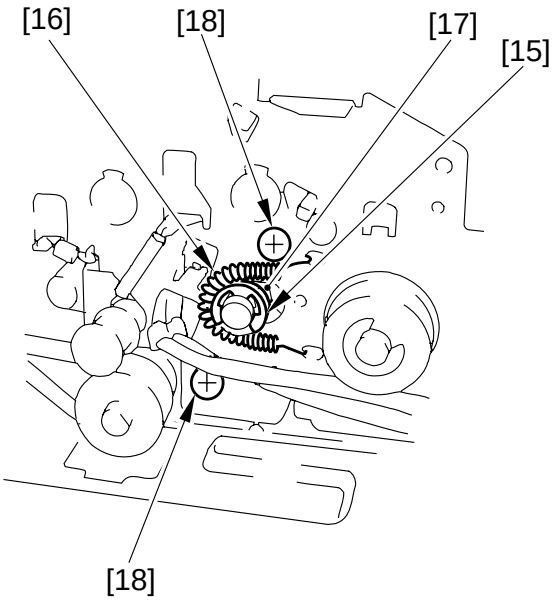
10) Remove the two screws [13], and detach the sensor base [14].



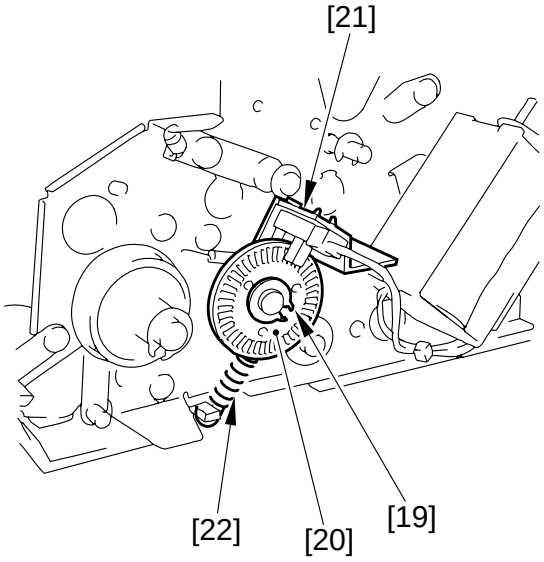
F03-305-06

11) Remove the E-ring [15], tension spring [16], bush [17], and two screws [18].



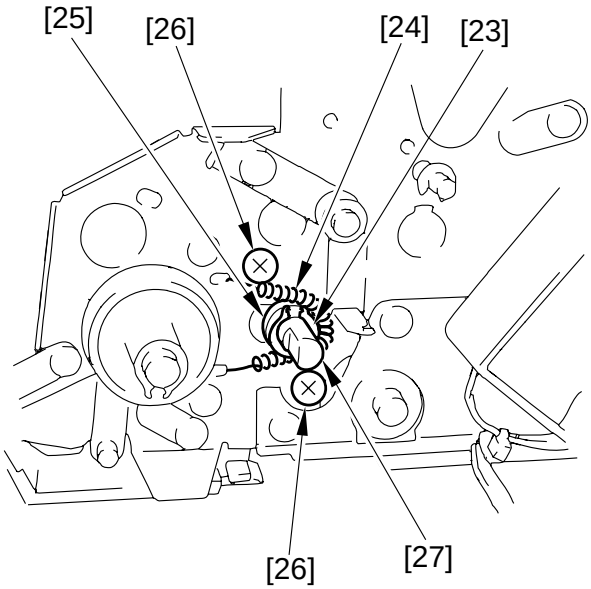
F03-305-07

12) Remove the grip ring [19]; then, detach the clock plate [20], sensor base [21], and spring [22].



F03-305-08

13) Remove the grip ring [23], tension spring [24], bush [25], and two screws [26]; then, detach the registration roller [27].



F03-305-09

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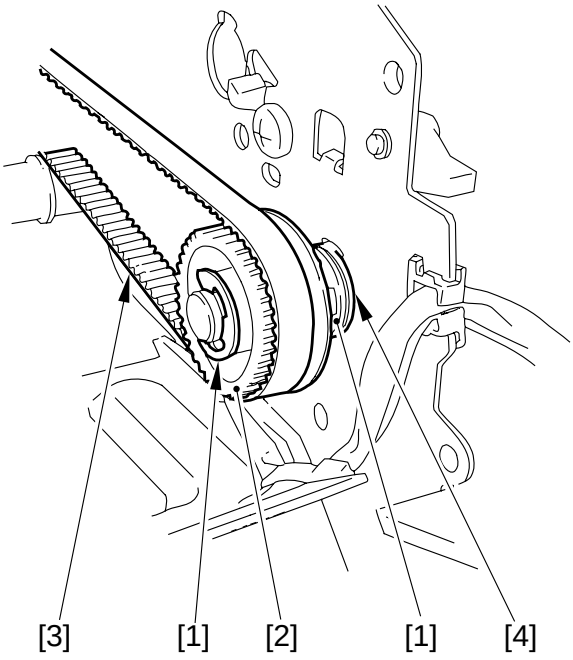
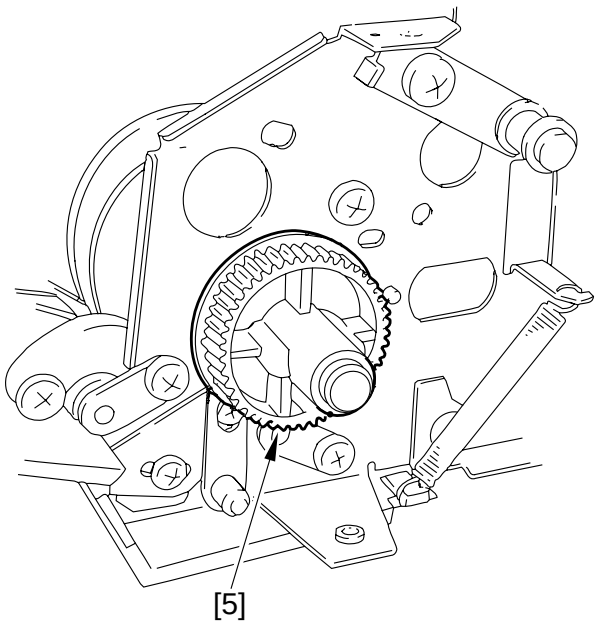
3.6 Delivery /Reversing Roller

1) Remove the main cover.
2) Detach the machine from its host copier.
3) Remove the registration roller.
4) Remove the two E-rings [1]; then, remove the gear [2], timing belt [3], and bush [4].
   (Take care not to lose the pin.)



F03-306-01

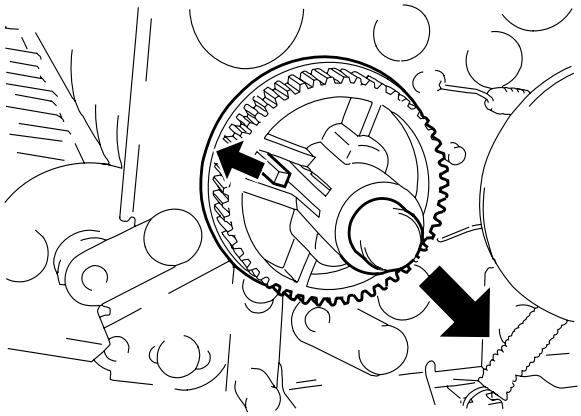
5) Remove the gear [5].
   (Take care not to lose the pin.)



F03-306-02

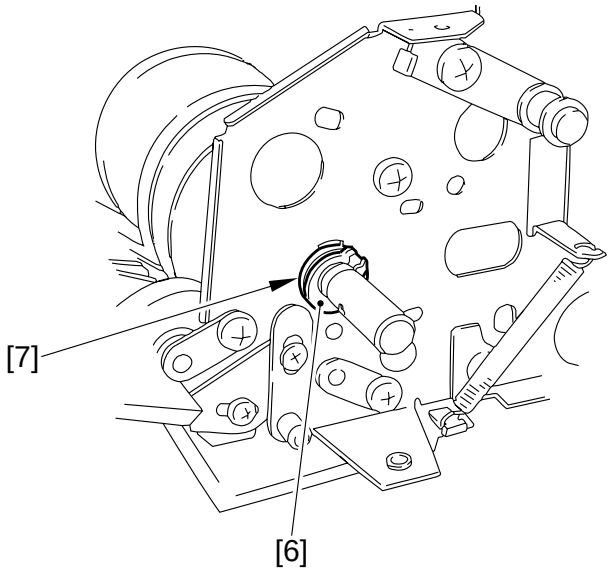
REF.

Remove the gear while freeing the lock.



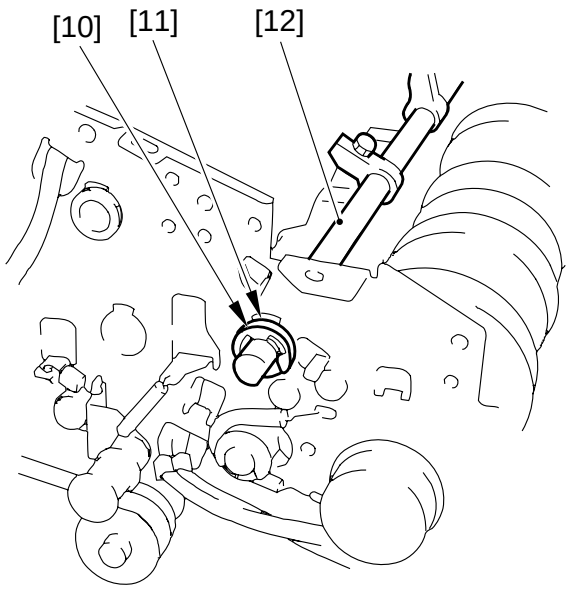
F03-306-03

6) Remove the grip ring [6], and remove the bush [7].



F03-306-04

7) Remove the screw [9], and remove the lower guide stopper [10].



F03-306-05

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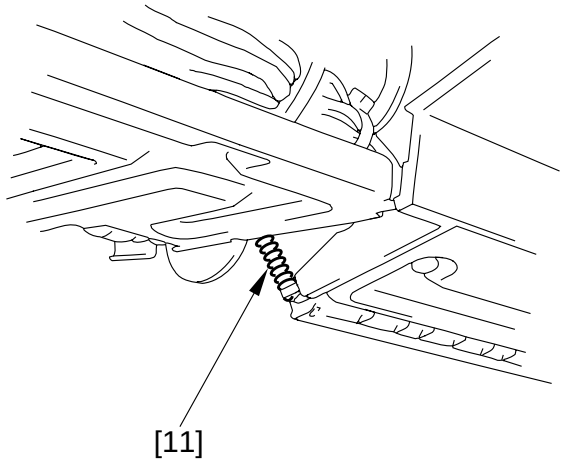
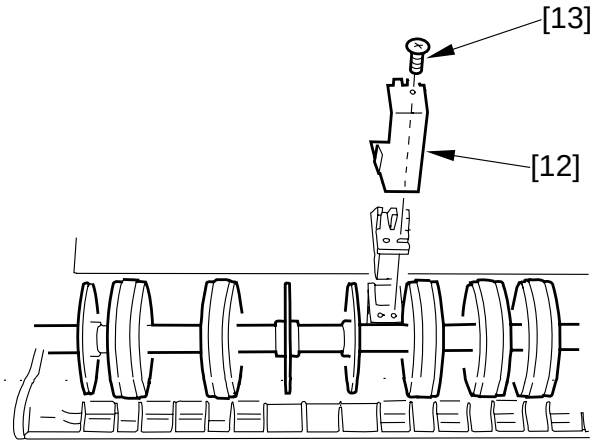
8) Remove the spring [11].

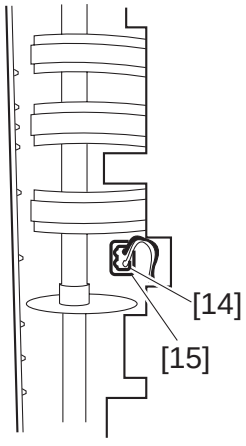


F03-306-06

9) Remove the screw [13], and detach the sensor cover [12]; then, disconnect the sensor connector [14] from under to shift up and detach the registration sensor [15].

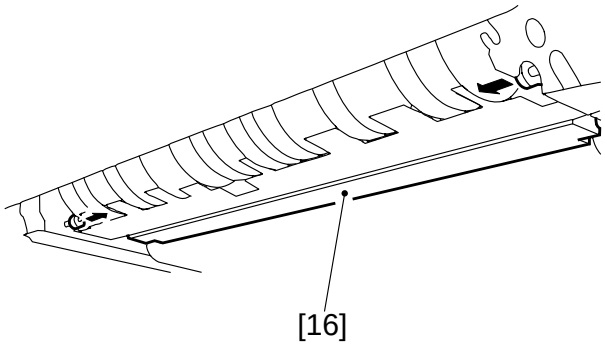


F03-306-07



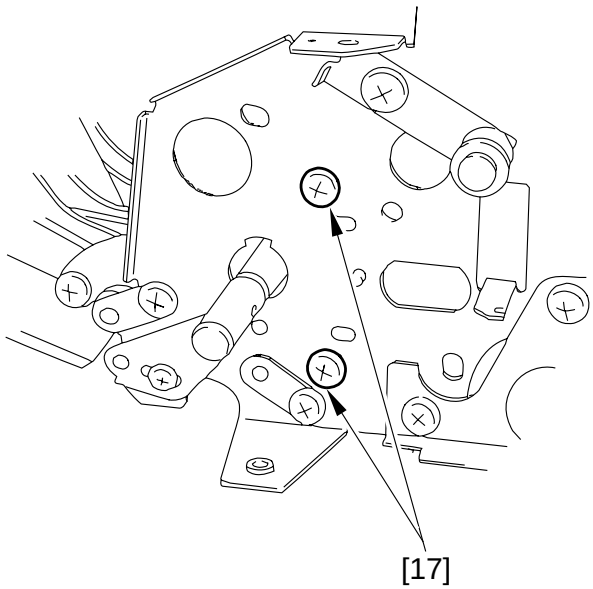
F03-306-08

10) Remove the paper guide [16].

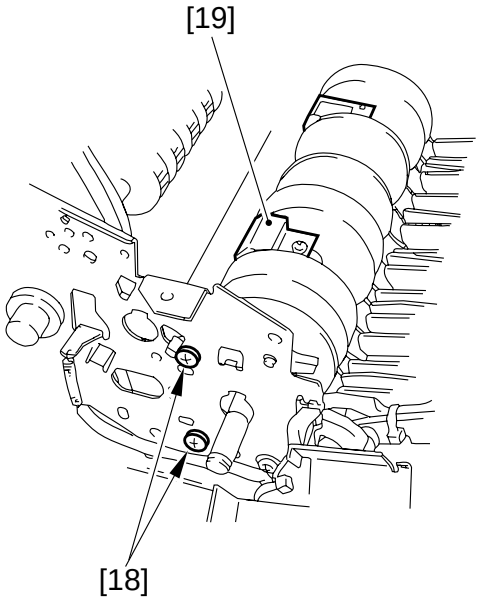


F03-306-09

11) Remove the two screws [17] from the rear and the two screws [18] from the rear; then, detach the reversing plate [19] by moving it down.



F03-306-10 (front)



F03-306-11 (rear)

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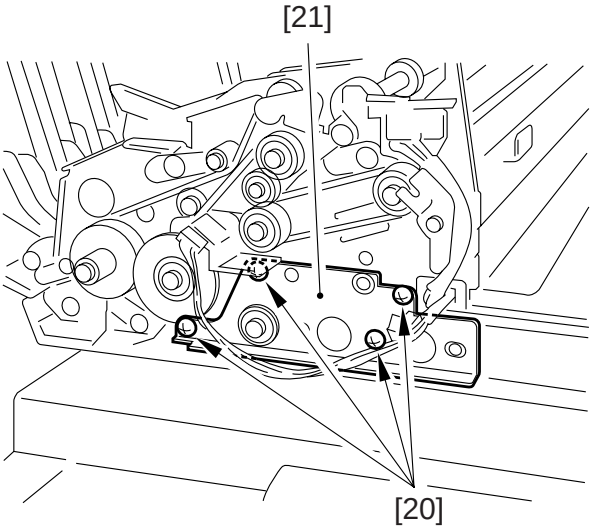
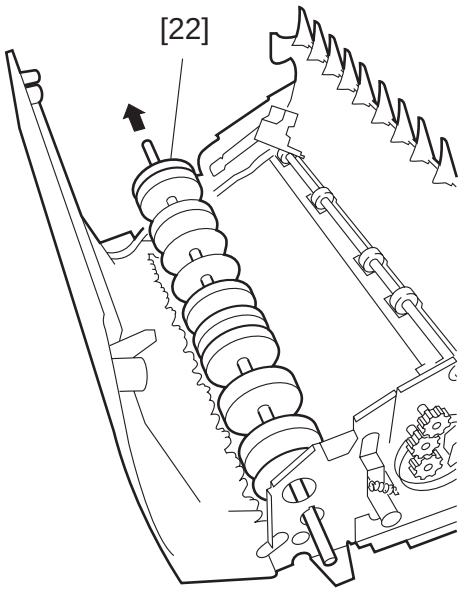
12) Remove the four screws [20], and detach the front side plate [21].



F03-306-12

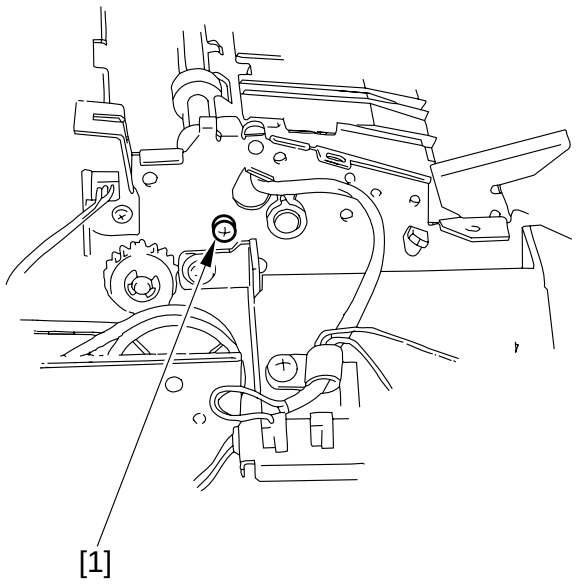
13) Remove the delivery/reversing roller [22].



F03-306-13

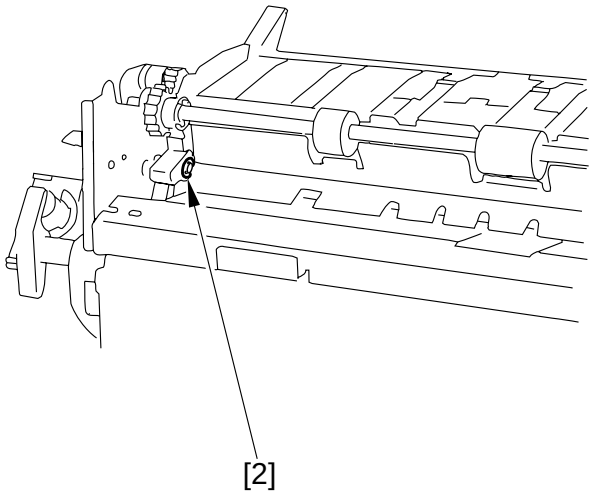
3.7 Delivery Roller Unit

1) Remove the main cover.
2) Remove the pickup motor.
3) Remove the screw [1].



F03-307-01

4) Remove the two E-rings [2].



F03-307-02

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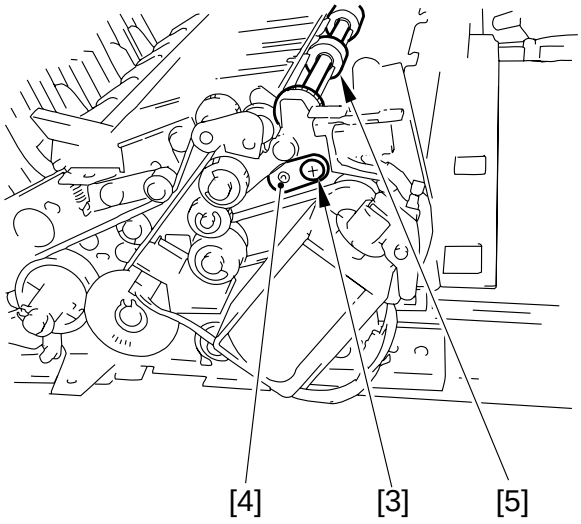
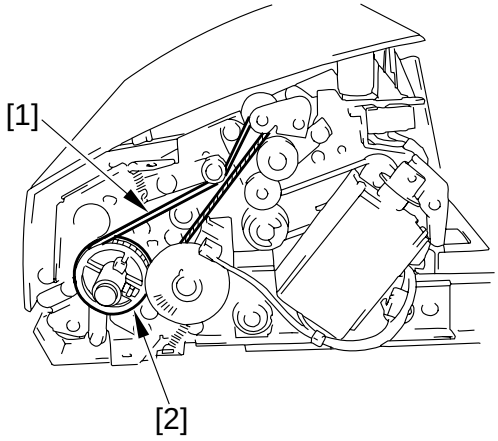
5) Remove the screw [3], and remove the fixing pin [4]; then, detach the delivery roller unit [5].



F03-307-03

3.8 Reversing Guide

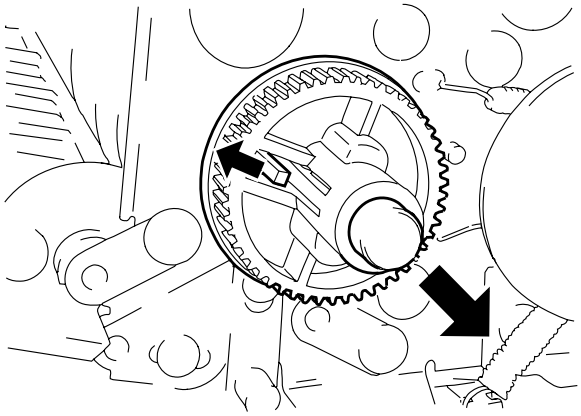
1) Remove the main cover.
2) Remove the gear [1], and detach the timing belt [2].



F03-308-01

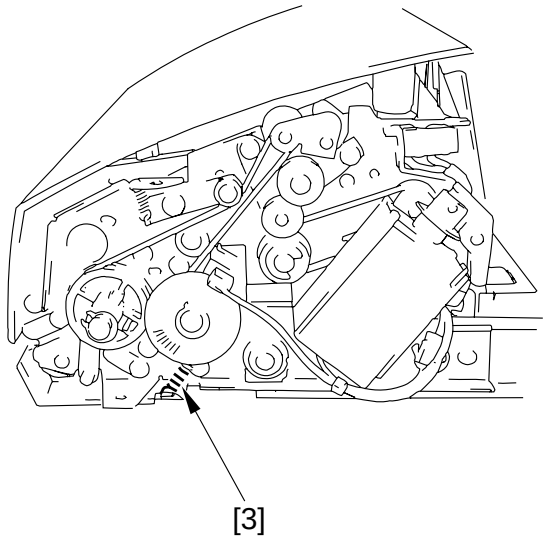
REF.

Remove the gear while freeing the lock.

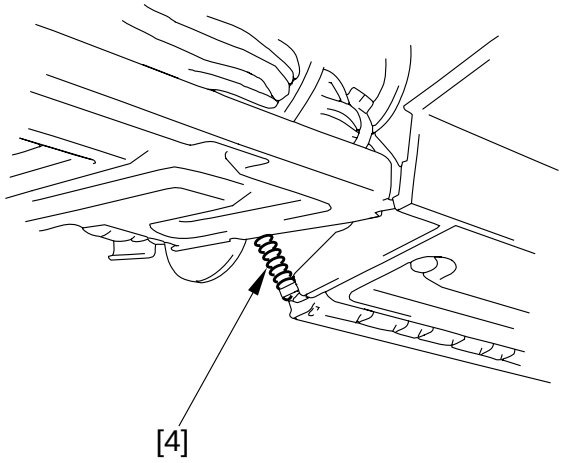


F03-308-02

3) Remove the front [3] and the rear [4] of the reversing guide spring.

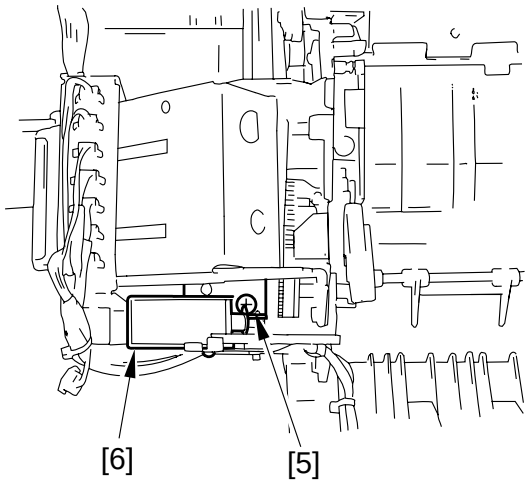


F03-308-03



F03-308-04

4) Remove the screw [5], and detach the solenoid unit [6].



F03-308-05

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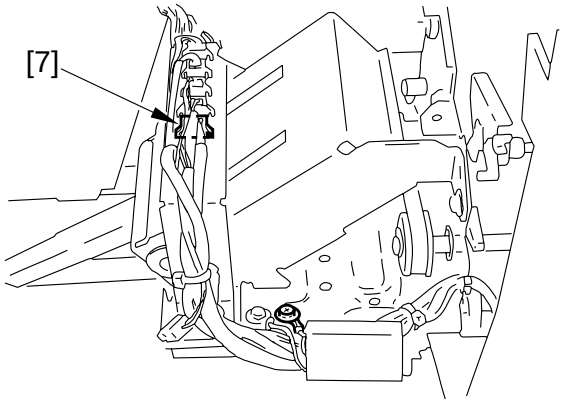
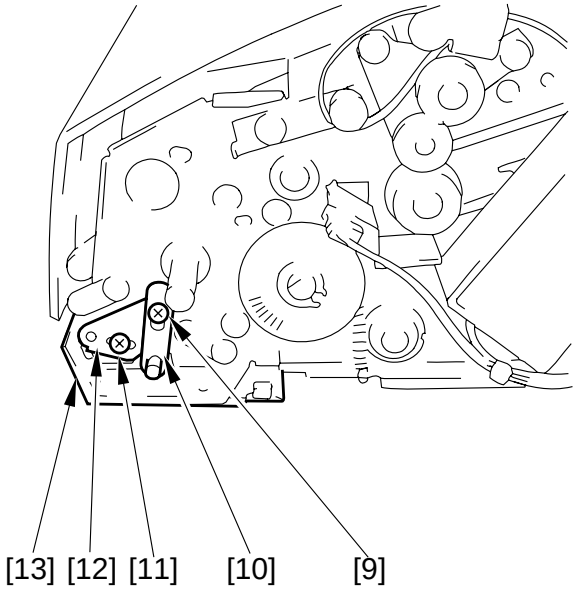
5) Remove the reversal sensor jack [7].



F03-308-06

6) Remove the screw [9], stopper [10], screw [11], and fixing pin [12]; then, detach the reversing guide [13].

When mounting the fixing pin, be sure to put it back to its initial position.

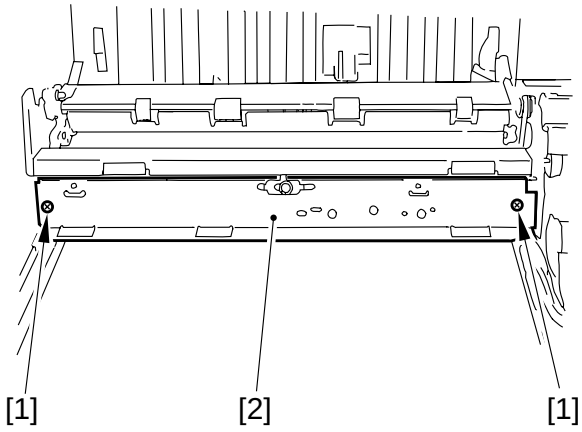


F03-308-07

3.9 Stopper Plate Solenoid

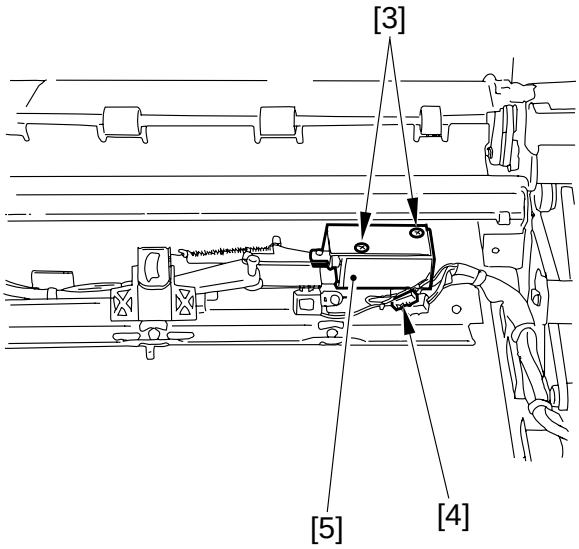
3.9.1 Removal

1) Remove the main cover.
2) Remove the two screws [1], and detach the original tray mounting plate [2].



F03-309-01

3) Remove the two screws [3], and disconnect the connector [4]; then, detach the stopper plate solenoid [5].



F03-309-02

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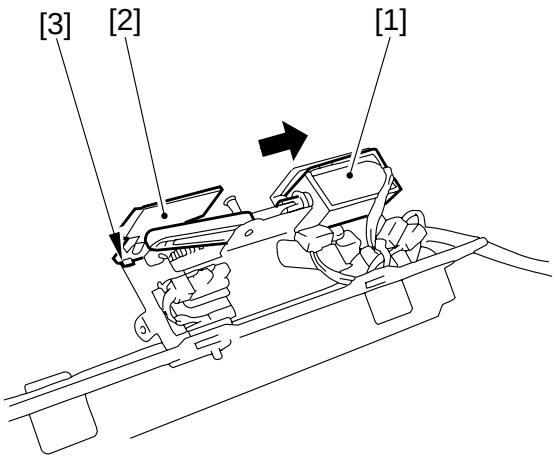
3.9.2 Making Adjustments

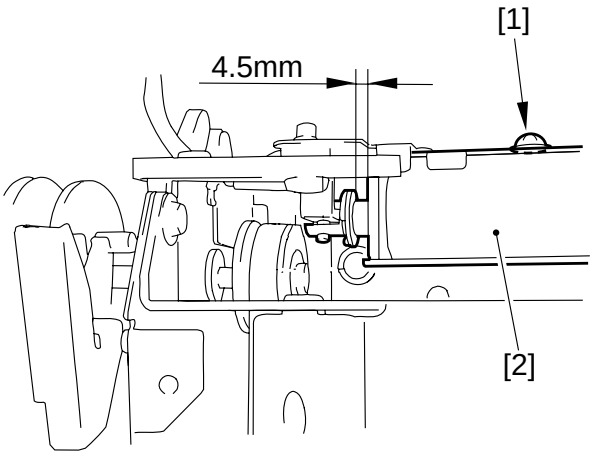
1) Secure the solenoid [1] in position where the stopper [3] (rubber block) comes into firm contact with the rear end of the stopper plate [2] when the plunger of the solenoid [1] is at the end of its end.



F03-309-03

3.10 Adjusting the Position of the Paper Deflecting Plate Solenoid (SL3)

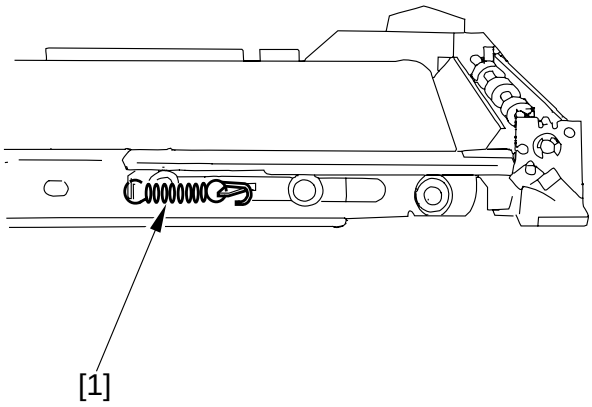
1) Remove the main cover.
2) Loosen the fixing screw [1], and secure the solenoid [2] in position where its stroke is 4.5 mm.



F03-310-01

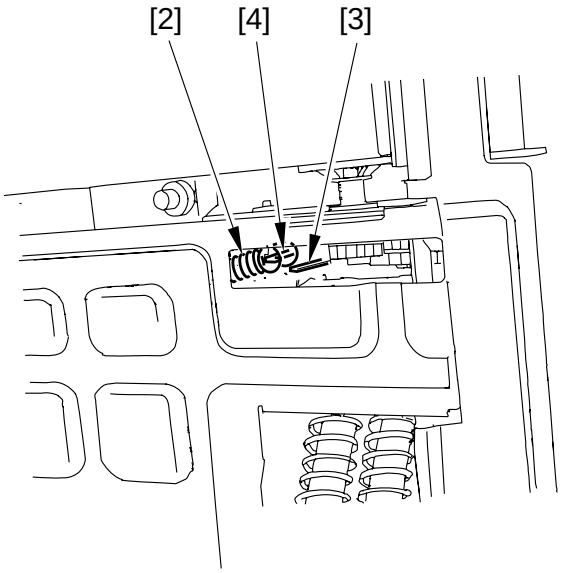
3.11 Feed Belt

1) Remove the main cover.
2) Remove the front spring [1].



F03-311-01

3) Free the rear spring [2] from the hook [3]; then, engage it on the temporary hook [4].



F03-311-02

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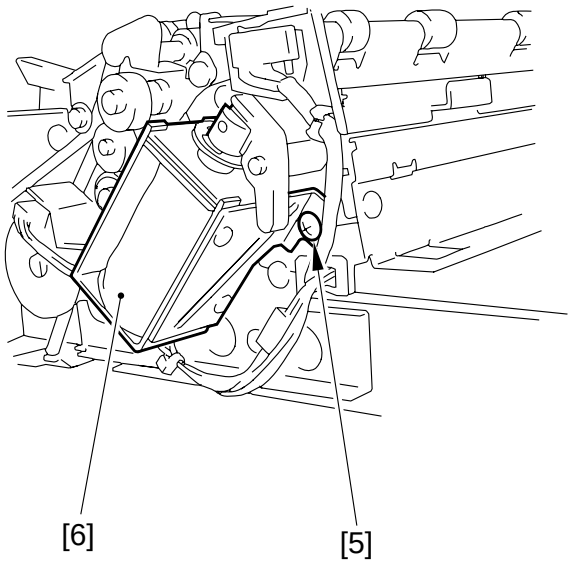
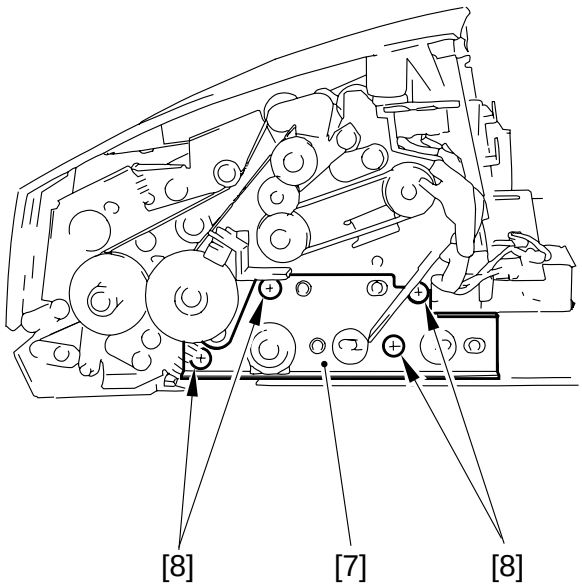
4) Remove the screw [5], and detach the solenoid [6].



F03-311-03

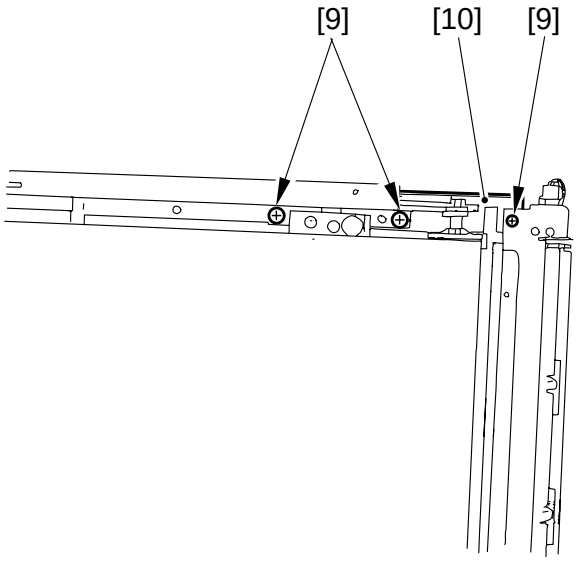
Take care not to lose the pin attached to the solenoid arm.

5) Remove the four screw [8], and detach the side plate [7].



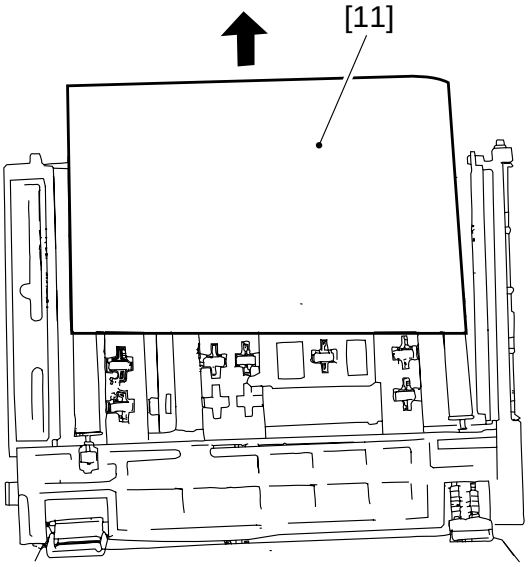
F03-311-04

6) Remove the three screws [9], and detach the delivery unit crossmember [10].



F03-311-05

7) Pull out the feed belt [11] to the front.



F03-311-06

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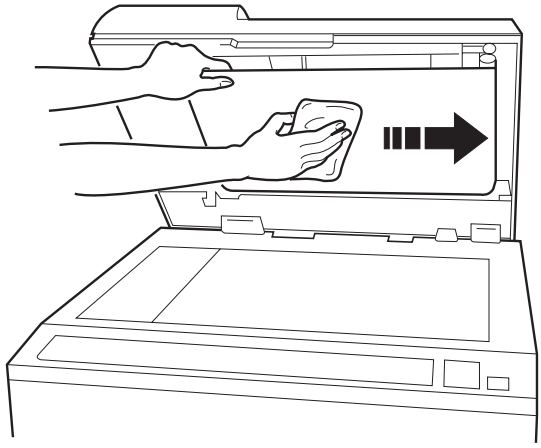
4 Cleaning

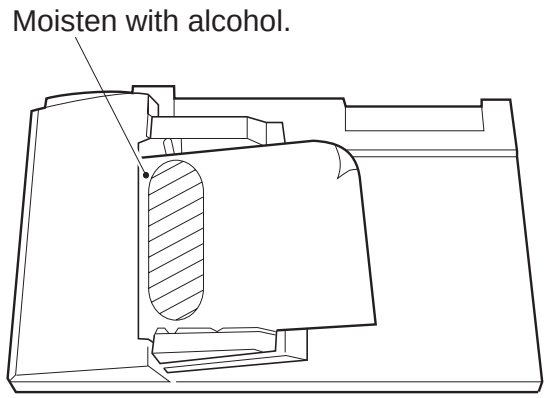
4.1 Belt Assembly

1) Dry wipe the feed belt while moving it in the direction of the arrow.



F03-401-01

2) Place copy paper moistened with alcohol on the original tray, and shift bit 6 of the DIP switch (DIPSW) on the DADF controller PCB to ON.



F03-401-02

3) Press the push switch (SW3) to execute separation belt cleaning.
4) When cleaning has ended, press the push switch (SW3), and shift all its bits to OFF.
5) Mount the DADF controller cover.

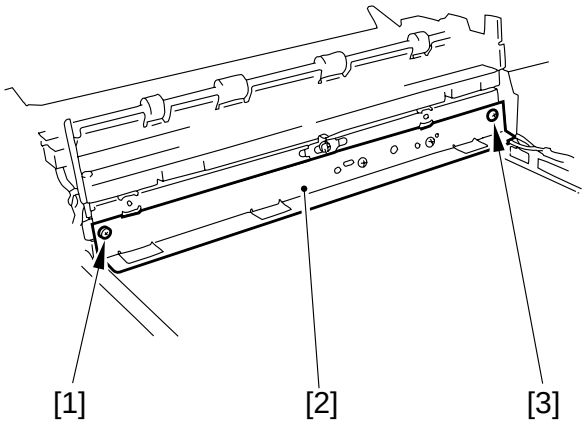
4.2 Sensors

The machine's original path is equipped with two transmission type sensors, i.e., original sensor (S1) and registration sensor S3; the pickup sensor (S7), delivery sensor (S6), and reversal sensor (S8) are photointerrupters.

The light-receiving face of a transmission type sensor tends to collect paper lint, leading to malfunction if left alone and, therefore, requiring the following:

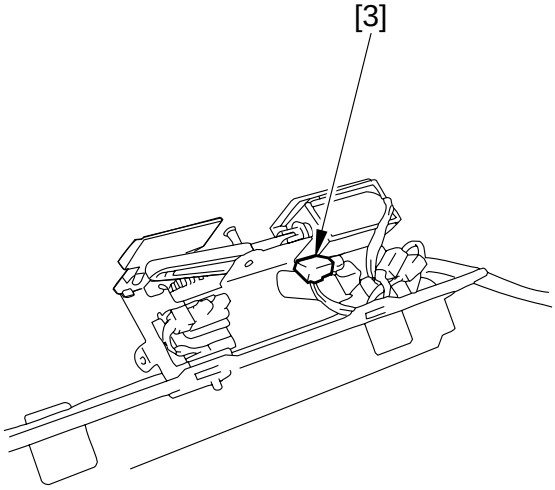
4.2.1 Cleaning the Original Sensor (S1)

1) Remove the two screws [1], and detach the original tray mounting plate [2].



F03-402-01

2) Clean the sensor (S1) [3] shown in the figure.



F03-402-02

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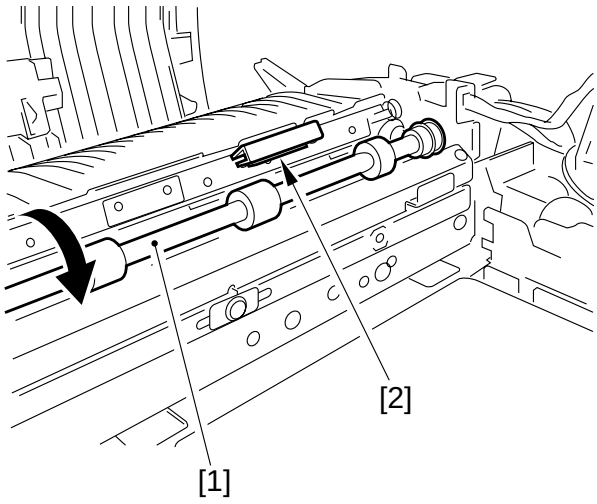
4.2.2 Original Sensor Reflecting Segment

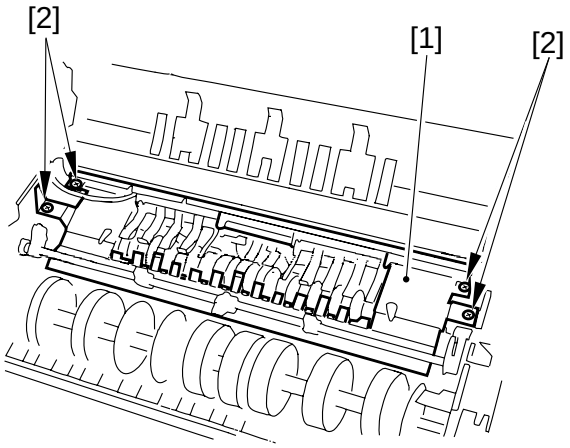
1) While the delivery roller [1] is down, clean the reflecting segment [2] of the original sensor.



F03-402-03

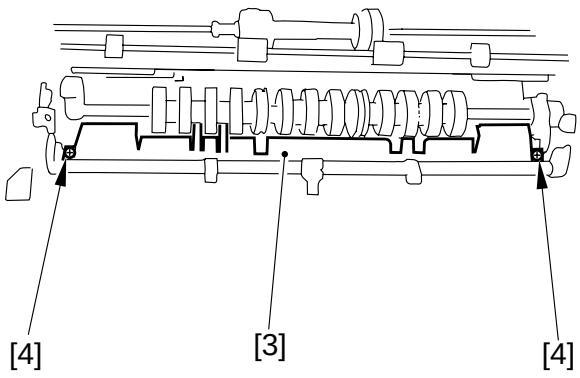
4.2.3 Registration Sensor (S3)

1) Detach the separation belt unit.
2) Remove the four screws [2], and detach the separation guide plate [1].



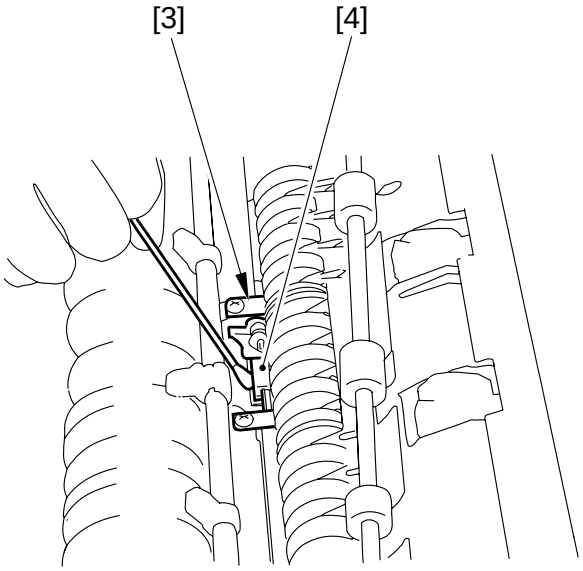
F03-402-04

3) Remove the two screws [4], and detach the inside guide plate [3].



F03-402-05

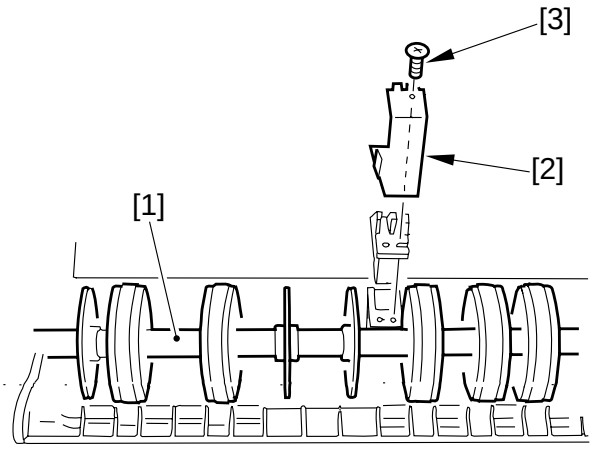
4) Clean the registration sensor (S3) [4] mounted to the inside guide plate [3].



F03-402-06

4.2.4 Registration Sensor LED3

1) Remove the screw [3], and detach the registration sensor LED3 cover [2] from the reversing roller unit [1].



F03-402-07

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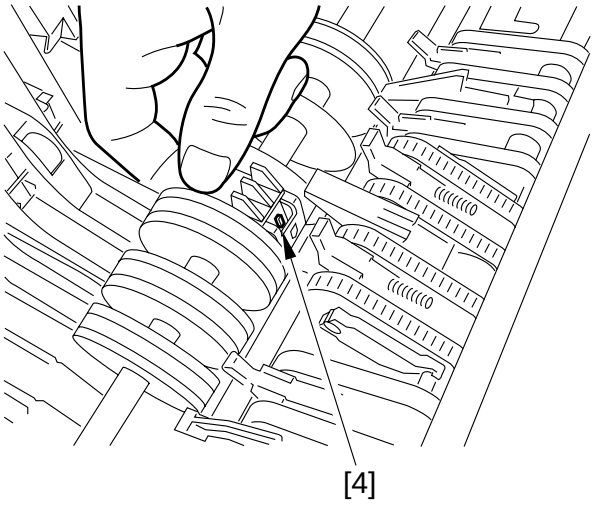
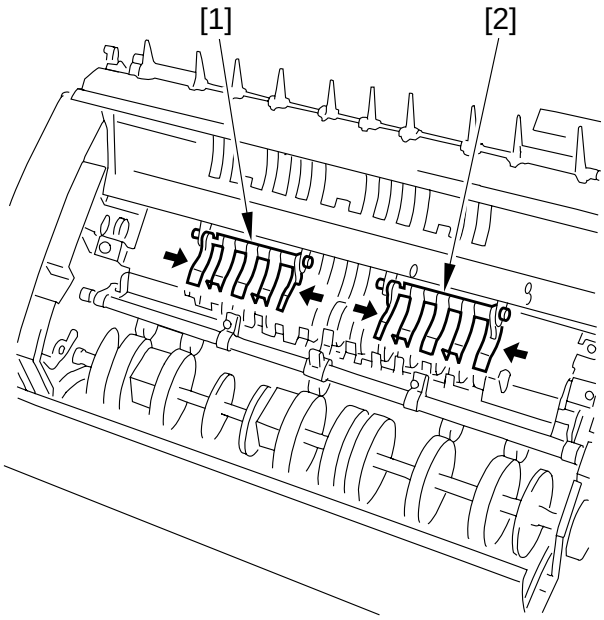
2) Clean the light-emitting face of the registration sensor LED3 [4].



F03-402-08

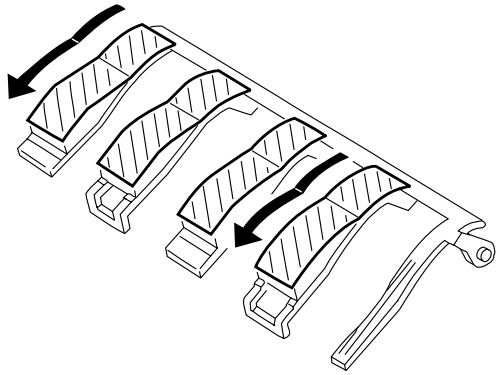
4.3 Separation Flapper

1) Remove the separation belt unit. (See the appropriate instructions.)
2) Remove the separation flapper at the rear [1] and at the front [2].
   - To facilitate detachment, push the mount in the direction of the arrow.



F03-403-01

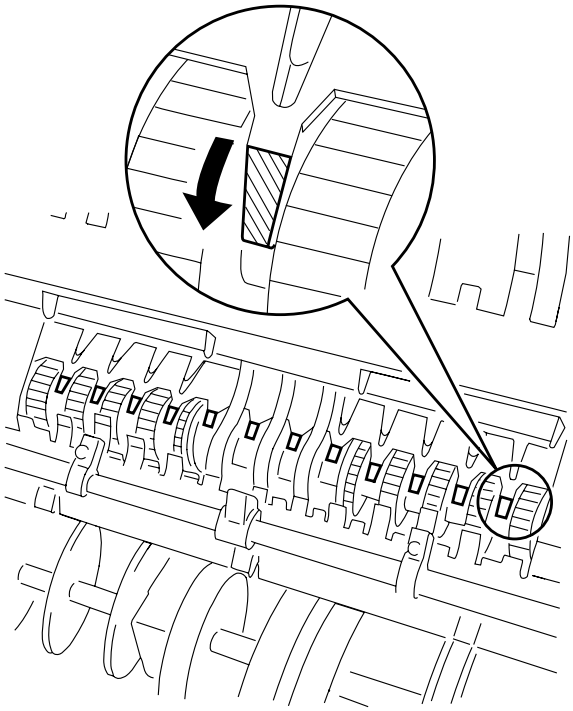
3) Clean the areas (shaded) of the separation flapper (rear, front) which will come into contact with paper using alcohol.
   - Be sure to keep the strokes in the paper feeding direction.



F03-403-02

4.4 Separation Front Guide

1) Remove the separation belt unit. (See the appropriate instructions.)
2) Remove the separation flapper at the rear and at the front. (See the appropriate instructions.)
3) Clean the eight faces of the separation front guide which come into contact with paper using alcohol.



F03-404-01

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5 Lubricating

The machine does not have parts that require lubrication on a regular basis. However, apply lubricant as needed whenever you have replaced gears or the like.

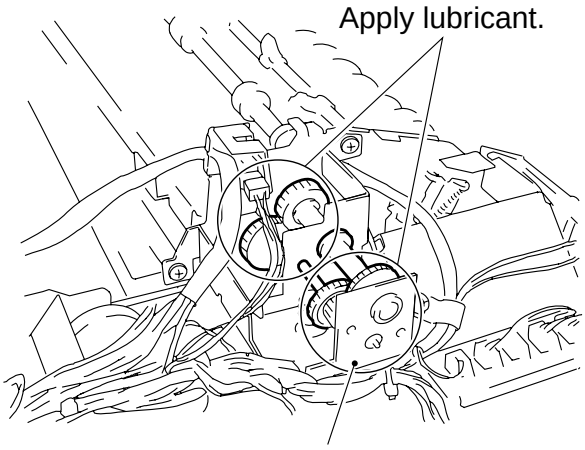
When applying lubricant, take extra care so that the timing belt and cables will not come into contact with oil. (Be sure to wipe off any lubricant completely.)

5.1 Pickup Drive Assembly

Apply lubricant to the areas indicated in the figure.

5.1.1 Rear

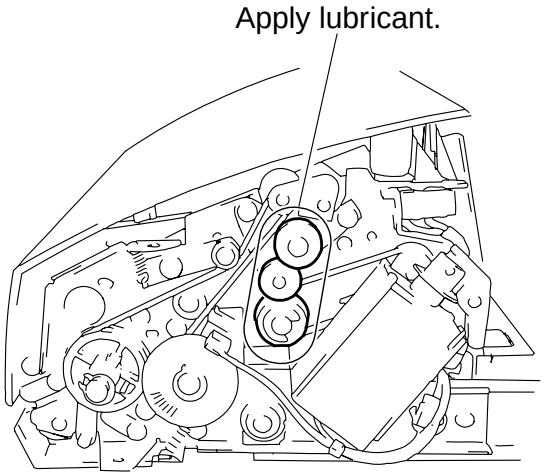
Took No.: CK-0551-020



F03-501-01

5.1.2 Front

Tool No.: CK-0551-020



F03-501-02

CHAPTER 4

MAINTENANCE AND INSPECTION

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1 Periodically Replaced Parts

The machine does not have parts that require replacement on a periodical basis.

2 Consumables and Durables

Some parts of the machine may require replacement because of wear or damage once or more during the period of its warranty. Replace them as need by referring to the following table:

as of May 2000

No.	Parts name	Parts No.	Q'ty	Life	Remarks
1	Feed belt	FC1-7815-000	1	200,000 sheets	If cleaning fails to remove dirt.
2	Pickup roller	FF5-9578-000	2	500,000 sheets	
3	Separation belt	FC2-1827-000	8	500,000 sheets	
4	Feed roller belt (large)	FB4-6991-000	8	500,000 sheets	
5	Feed roller belt (small)	FB3-5703-000	2	500,000 sheets	
6	Separation flapper (rear)	FF5-9583-000	1	250,000 sheets	
7	Separation flapper (front)	FF5-9584-000	1	250,000 sheets	

The above values are estimates only and are subject to change based on future data.

T04-200-01

3 Scheduled Servicing

Do not use solvents or lubricants other than those specified.

△: Clean ●: Replace ×: Lubricate □: Adjust ◎: Inspect

Ref.	Parts name	Scheduled servicing every 100,000	Scheduled servicing every 200,000	Remarks
1	Delivery/reversing roller	△		
2	Registration roller	△		
3	Registration paper sensor (S3)		△	
4	Separation belt (pickup assembly)	△		
5	Separation flapper (rear, front)	△		Or 6 months, whichever is earlier.
6	Feed roller (pickup assembly)	△		
7	Original tray paper sensor (S1)		△	
8	Delivery roller	△		
9	Pickup roller (pickup assembly)		△	
10	Feed belt	△		
11	Copyboard glass	△		
12	Separation front guide	△		Or 6 months, whichever is earlier.
13	Vertical size plate	△		
14	Feed belt retaining roll spring		×	Upon replacement of feed belt {Apply lubricant where the spring comes into contact with the feed belt retaining roll.}

T04-300-01

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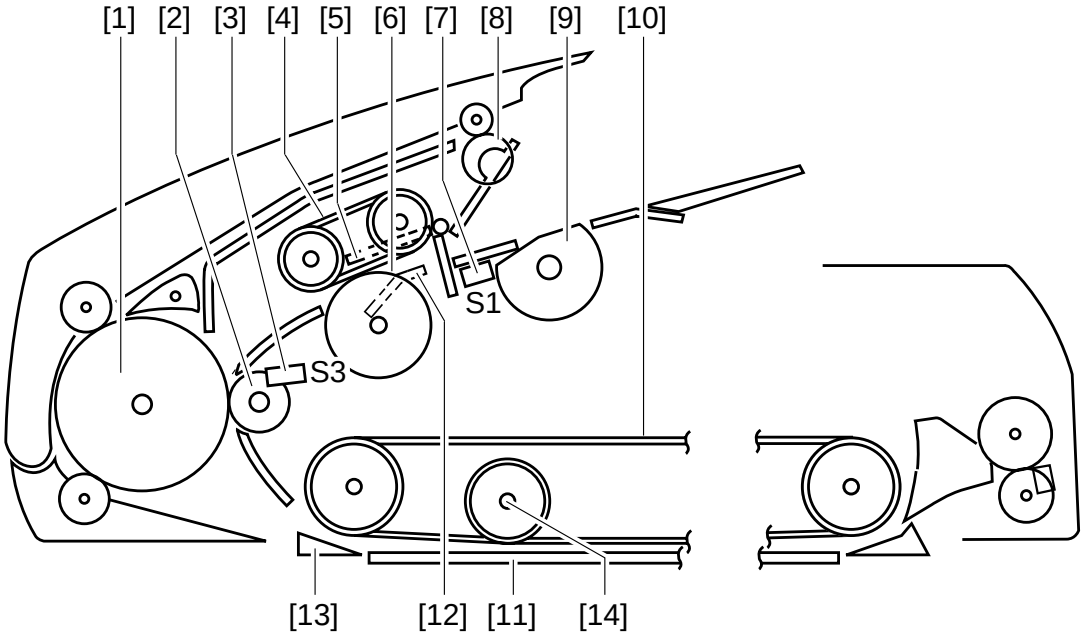

F04-300-01

CHAPTER 5

TROUBLESHOOTING

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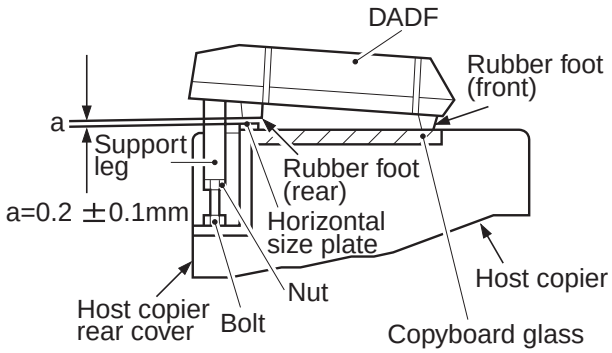
1 Standards and Adjustments

1.1 Mechanical

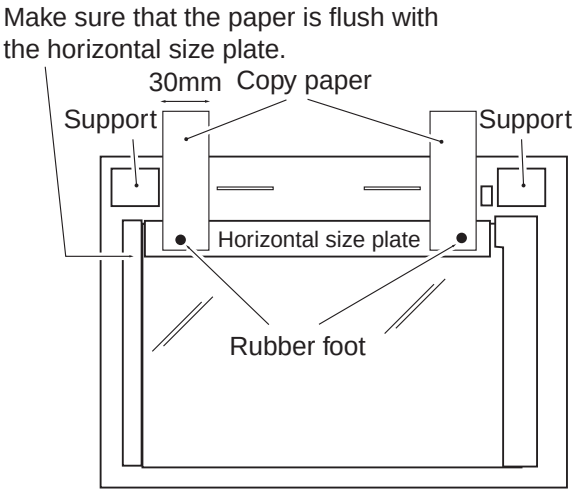
1.1.1 Adjusting the Height of the Machine

1) Remove the host copier's rear cover. Turn the bolt of the left/right support leg so that the distance a between the two rubber feet at the rear and the horizontal size plate of the copyboard glass is 0.2 ±0.1 mm (approximately a gap into which two sheets of copy paper of 64 /m^2 may be inserted) when the machine is closed (i.e., the rubber feet at the front are in contact with the copyboard glass).
After making the adjustment, be sure to tighten the nut to lock.



F05-101-01

2) After making the adjustment, check to make sure that the machine's rubber feet at the front are firmly in contact with the copyboard glass; otherwise, adjust the height of the magnet at the front.



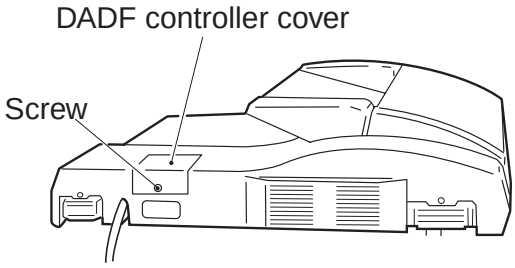
F05-101-02

1.1.2 Adjusting the Original Stop Position

Be sure to perform "Adjusting the Height of the Machine" in advance; be sure to perform "Correcting the Original Skew," "Adjusting the Distance to the Horizontal Size Plate," and "Adjusting the Original Leading Edge Stop Position," in the order indicated.

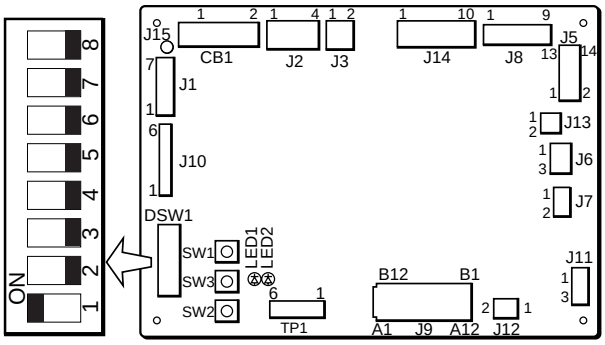
a. Removing the Original Skew

1) Remove the screw, and detach the DADF controller cover.



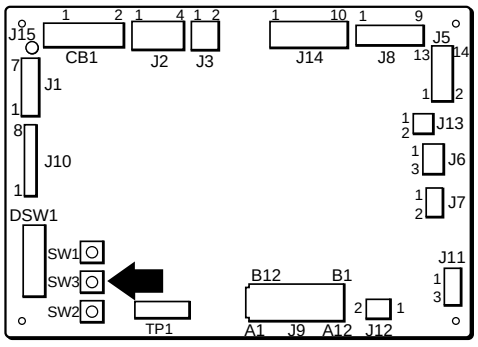
F05-101-03

2) Shift bit 1 of the DIP switch (DSW1) on the DADF controller PCB to ON.



F05-101-04

3) Place one sheet of A3 or 279.4×431.8-mm (11”×17”) copy paper on the original tray.
4) Press the push switch (SW3) on the DADF controller PCB once.
   - The copy paper will be picked up and stopped on the copyboard glass.



F05-101-05

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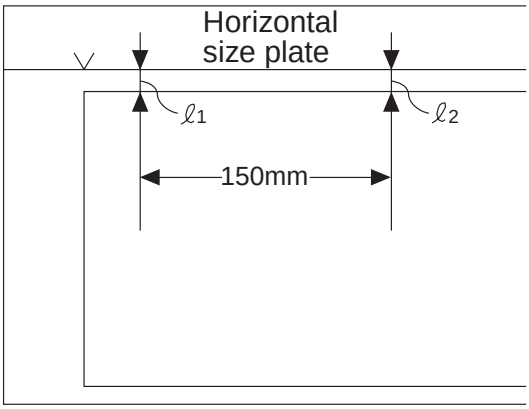
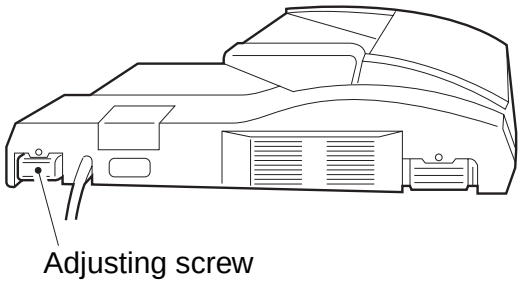
5) Open the machine carefully, and check to make sure that the difference between ℓ_1 and ℓ_2 shown in the figure is 1 mm or less.



Standard
$\ell_1 - \ell_2 = 0 \pm 1$mm
ℓ_1 may be anywhere on the copy paper.

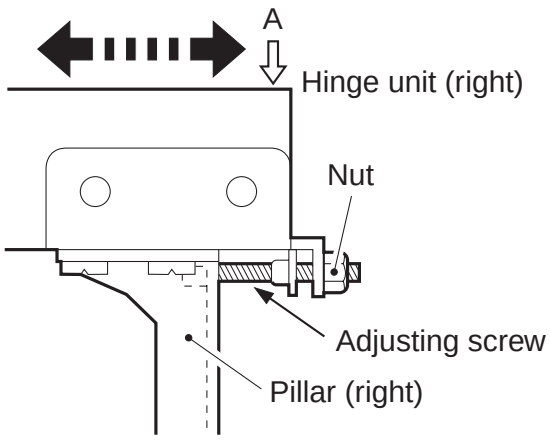
F05-101-06

6) If the difference is not as indicated, loosen the nut at the rear of the right hinge assembly, and turn the adjusting screw to correct.



F05-101-07

When turning the adjusting screw, be sure to force the hinge assembly in the direction of arrow A.



F05-101-08

- Relationship Between Adjusting Screw and ℓ_1/ℓ_2

Direction of turn	Relationship between ℓ_1 and ℓ_2
Clockwise	$\ell_1<\ell_2$
Counterclockwise	$\ell_1>\ell_2$

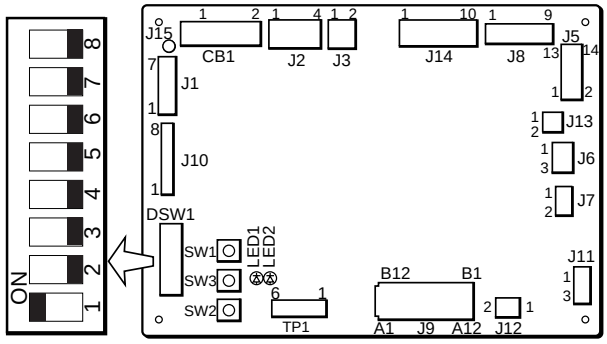
T05-101-01

7) After adjustment, tighten the nut to lock the adjusting screw in place.

b. Adjusting the Distance to the Horizontal Size Plate

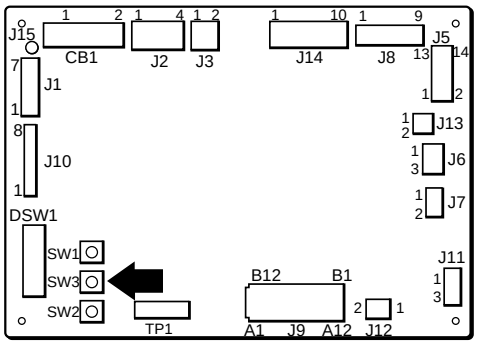
Be sure to perform “Removing the Original Skew” first.

1) Shift bit 1 of the DIP switch (DSW1) on the DADF controller PCB to ON.



F05-101-09

2) Place one sheet of A3 or 279.4×432.8-mm (11”×17”) copy paper (64 g/m^2) on the copyboard glass.
3) Press the push switch (SW3) on the DADF controller PCB once.
   - The copy paper will be fed and stopped on the copyboard glass.



F05-101-10

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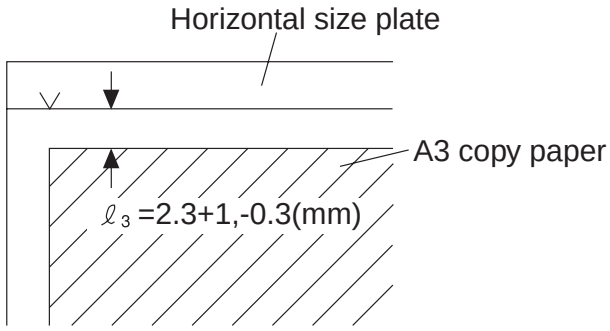
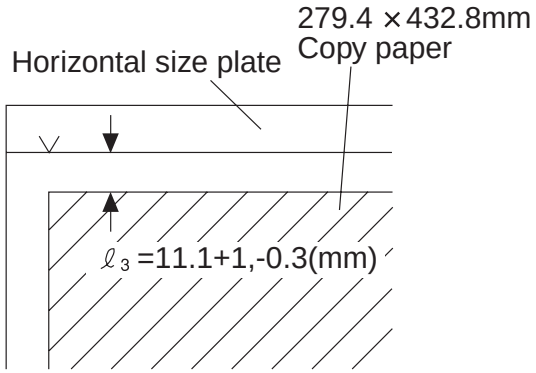
4) Open the machine carefully, and check to make sure that the distance ℓ_3 is as indicated.



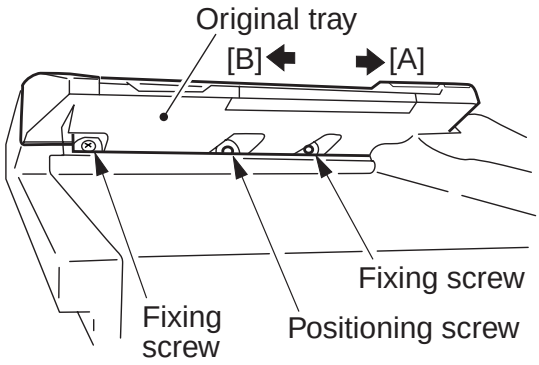
F05-101-11



F05-101-12

5) If the distance is not as indicated, loosen the positioning screw and the fixing screw of the original tray, and adjust the position of the original tray.

When making a test copy, be sure to tighten the two fixing screws and the positioning screw. Otherwise, the original may jam.



F05-101-13

- Relationship Between Original Tray and ℓ_3

Direction of shift	ℓ_3
A	Decreases
B	Increases

T05-101-02

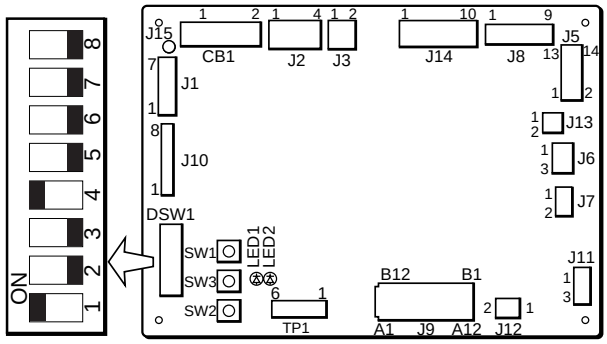
6) After adjustment, check to make sure that the positioning screw and the fixing screw have been tightened.

c. Adjusting the Original Leading Edge Stop Position

Be sure to perform “Removing the Original Skew” and “Adjusting the Distance to the Horizontal Size Plate” first.

1. Top Pickup Mode

1) Shift bits 1 and 4 of the DIP switch (DSW1) of the DADF controller PCB to ON.

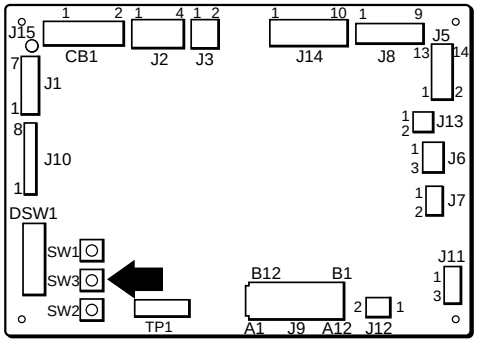


F05-101-14

2) Place one sheet of A3 or 279.4×432.8-mm (11”×17”) copy paper (64 g/m^2) on the original tray.

3) Press the push switch (SW3) of the DADF controller PCB once.

- The copy paper will be fed and stopped on the copyboard glass.



F05-101-15

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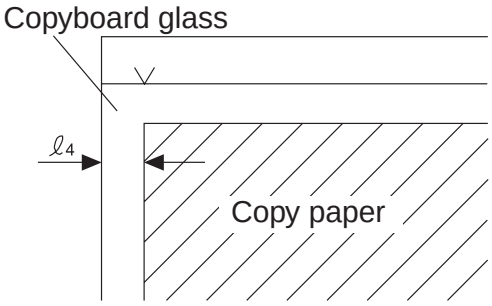
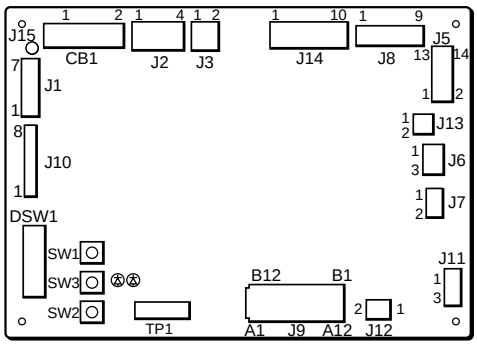
4) Open the machine carefully, and measure the stop position of the copy paper ℓ_4; then, close the machine carefully.



Standards :
Stop position ℓ_4 =11.0 ±1mm

F05-101-16

5) Use the push switches (SW1, SW2) of the DADF controller PCB to adjust the original leading edge stop position; each press on the switch moves the stop position by 0.34 mm.
When the stop position is correct, press the push switch (SW3) once so that the copy paper will be discharged and the new setting will be stored.



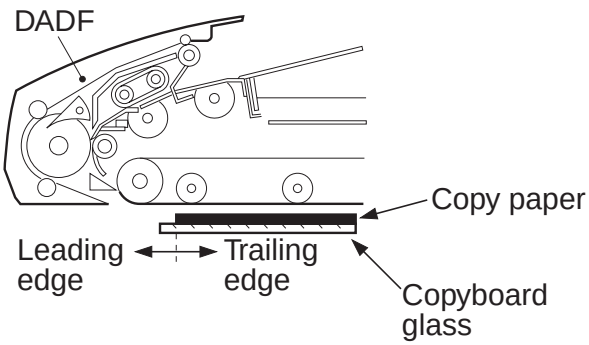
F05-101-17

- Relationship Between Push Switch and Copy Paper

Push switch	Shift of copy paper
SW1	To rear
SW2	To left

T05-101-03

Holding down the push switch will not result in a change of more than 0.34 mm.



F05-101-18

EX.

If the stop position ℓ_4 is 10 mm from the leading edge of the copyboard glass when the machine is opened (after pressing the push switch (SW3) of the DADF controller PCB once and the copy paper stopped on the copyboard glass),

Close the machine carefully, leaving the copy paper on the copyboard glass.

To move the stop position of the copy paper 1.0 mm to the rear (i.e., 1.0 mm ÷ 0.34 = 2.94), the push switch (SW1) needs to be pressed three times.

Press the push switch (SW1) three times and then the push switch (SW3) once so that the copy paper will be discharged and the new setting will bostored.

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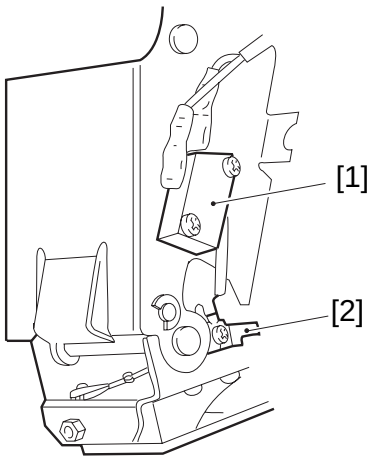
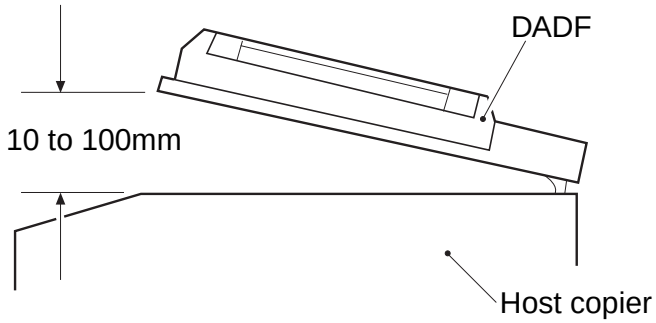
1.1.3 Adjusting the DADF Open /Close Switch (MS1)

1) Remove the main cover.
2) Open and close the machine, and adjust the retaining plate so that the DADF switch (MS1) turns on and off when the machine is 10 to 100 mm from the copyboard glass.
   [1] DADF switch (MS1)
   [2] Retaining plate



F05-101-19



F05-101-20

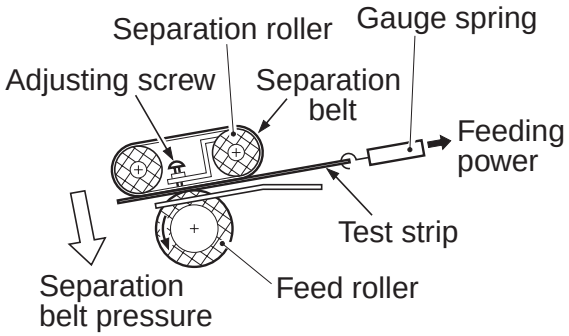
1.1.4 Adjusting the Separation Belt Pressure

a. Outline

If originals tend to move askew because of wear on the separation belt or the feed roller in the field, adjust the pressure of the separation belt.

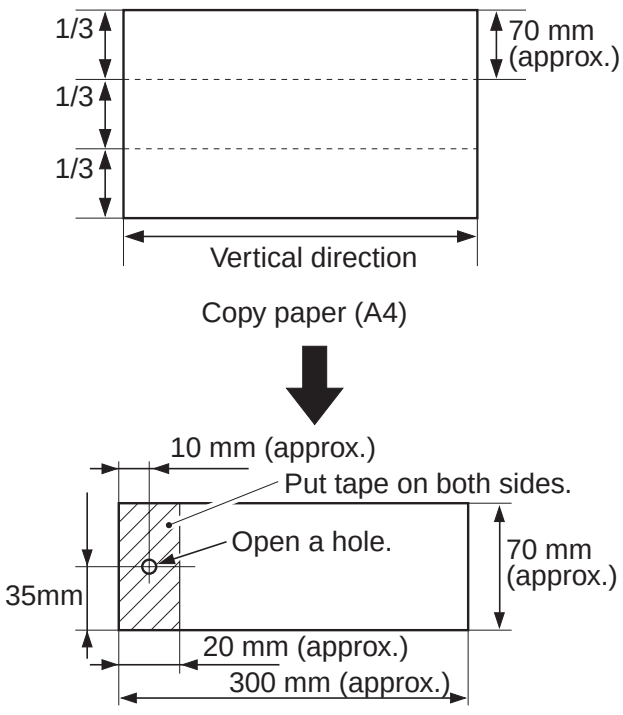
Be sure to perform the following adjustments when replacing the separation belt or the feed roller:

b. Before Starting the Work



F05-101-21

1) Prepare a test strip for measuring the feed power: cut an A4 or LTR sheet of paper (64 or 80 g/m^2) to obtain a strip of about 70 mm, attach a length of tape to both edges of the strip, and open a hole.



F05-101-22

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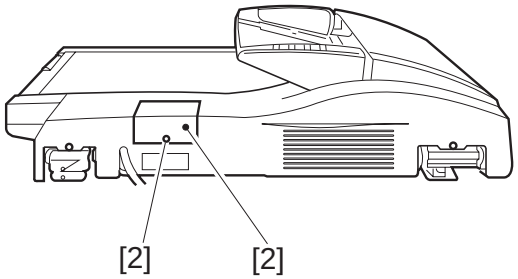
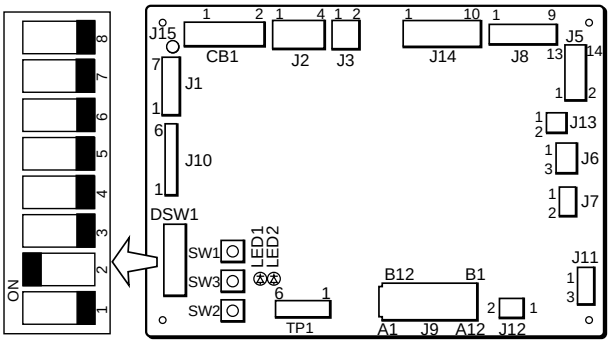
c. Making Adjustments

1) Remove the screw [2], and detach the DADF controller cover [1] of the machine.



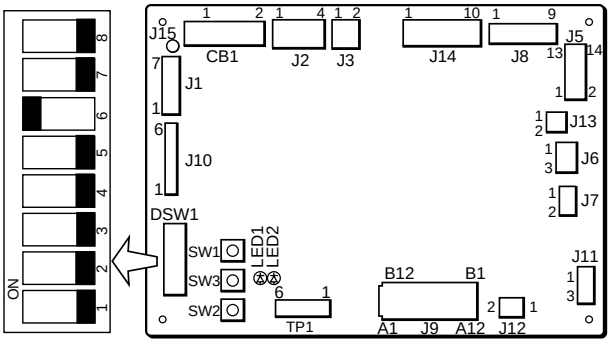
F05-101-23

2) Shift bit 2 of the DIP switch (DSW1) of the DADF controller PCB to ON to select continuous pickup/delivery mode; then, turn on the host copier.



F05-101-24

3) Place five to ten sheets of copy paper (A4 or LTR) on the original tray, and press the push switch (SW3) on the DADF controller PCB so that continuous pickup/delivery starts.
4) After about 2 min of continuous pickup/feed, press the push switch (SW3) once again to stop the operation.
5) Shift bit 2 of the DIP switch (DSW1) on the DADF controller PCB to OFF and 6 to ON to select separation belt/feed roller cleaning mode (service mode). Be sure to remove all copy paper from the original tray.

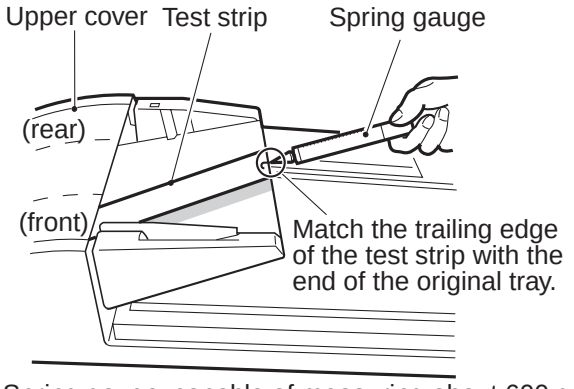


F05-101-25

6) Press the push switch (SW3) on the DADF controller PCB. Feed the test strip into the separation assembly at the front to measure the feed power as shown in the figure.

Points to Note When Taking Measurements

1. Make sure that three separation belts are covered by the test strip.
2. Make sure that the test strip is straight in reference to the separation belts as shown in the figure.
3. Be sure to take measurements when the rear edge of the test strip is aligned with the end of the original tray as shown in the figure.



Spring gauge: capable of measuring about 600 g
(Tool No.: CK-0058)

F05-101-26
Measuring the Feeding Force (front)

7) Open the machine's upper cover to end the measurement.

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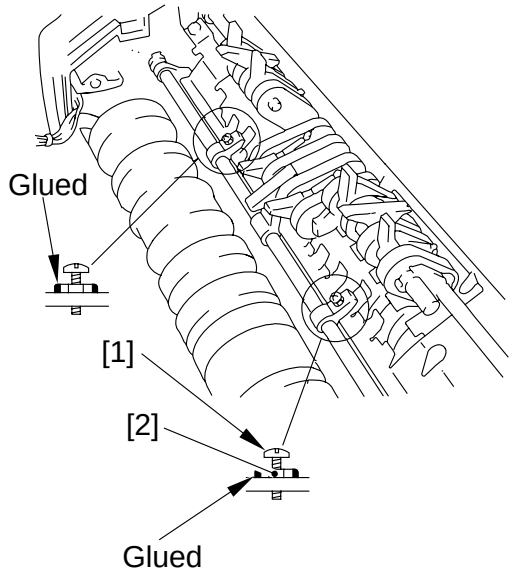
8) Loosen the lock nut [1] used to keep the front in place, and turn the adjusting screw [2] so that the feeding power is as indicated. Then, tighten the lock nut [1].



F05-101-27

Test strip paper	Feeding power (g)
64 g/m^2	520 ±20
80 g/m^2	570 ±20

Guide: try to limit the difference in feeding power between front and rear to a minimum.

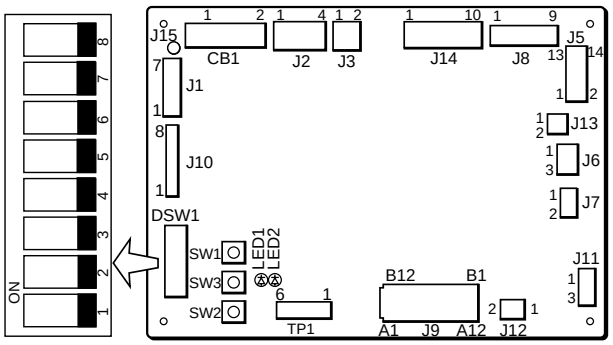
T05-101-04 Standard Feeding Power

Direction of turn	Feeding power
Clockwise	Decreases
Counterclockwise	Increases

Guide: a 90° turn of the adjusting screw will change the feeding power by about 25 g.

T05-101-05
Adjusting Screw and Feeding Power

9) Adjust the feeding power at the front in the same way.
10) Measure the feeding power at the front and the rear once again; if both measurements are as indicated, tighten the lock nuts, and lock them with glue. Otherwise, start over the adjustments.
11) Shift bit 6 of the DIP switch (DSW1) on the DADF controller PCB to OFF to end service mode.



F05-101-28

12) Mount the DADF controller cover.

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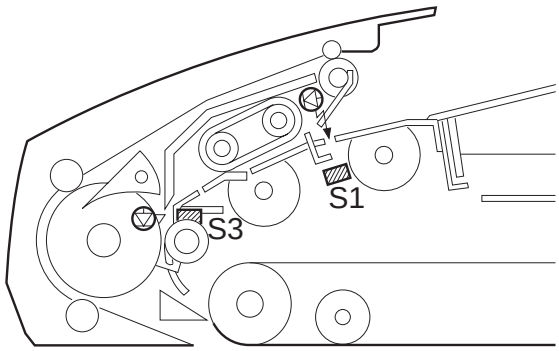
1.2 Electrical

1.2.1 After Replacing Major Parts

Major part	Dscription
DADF controller PCB	1. Adjusting the level of the original tray paper sensor (S1)/registration sensor (S3) 2. Adjusting the original width detecting volume (VR) 3. Adjusting the original stop position (See A. “Mechanical.”)
Original tray paper sensor (S1)	1. Adjusting the level of the original tray paper sensor (S1)/registration sensor (S3).
Registration sensor (S3)	1. Adjusting the level of the original tray paper sensor (S1)/registration sensor (S3).
Original width detecting volume (VR)	1. Adjusting the original width detecting volume (VR)

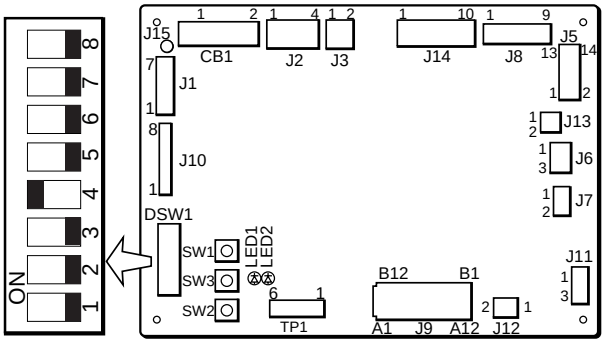
T05-102-01

1.2.2 Adjusting the Level of the Original Tray Paper Sensor (S1)/Registration Sensor (S3)



F05-102-01

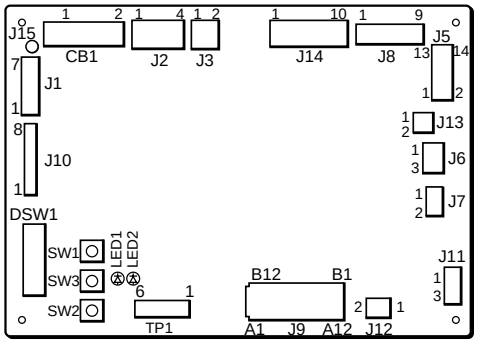
1) Remove the machine’s cover, and shift bit 4 of the DIP switch (DSW1) of the DADF controller PCB to ON.



F05-102-02

2) Without placing any original on the original tray, press the push switch (SW3) on the DADF controller PCB.
   - LED1 and LED2 on the DADF controller PCB turn on.
   - If LED1 and LED 2 do not turn on 30 sec or later, the following is true:
     LED1: the original tray paper sensor (S1) is faulty.
     LED2: the registration sensor (S3) or the DADF controller PCB is faulty.

3) After making sure that LED1 and LED2 have turned on, press the push switch (SW3) on the DADF controller PCB.
   - The two LEDs will turn off to end adjustment.
4) Shift the bits of the DIP switch (DSW1) on the DADF controller PCB back to their initial positions.



F05-102-03

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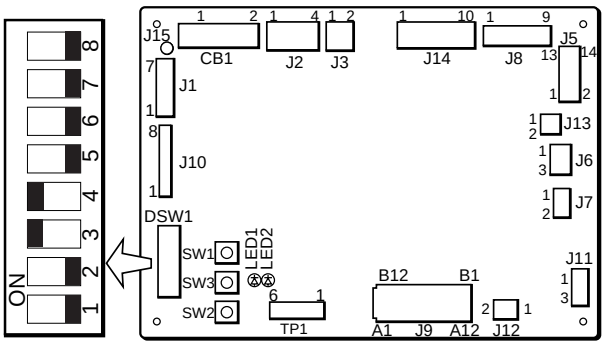
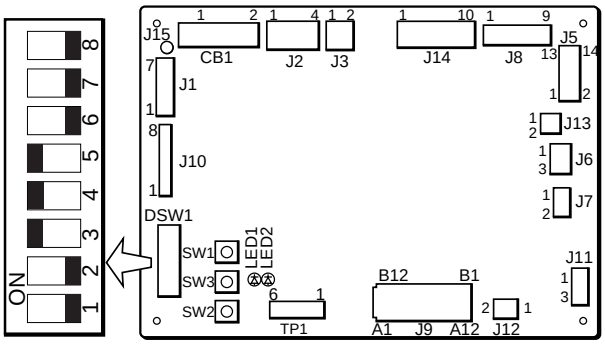
1.2.3 Adjusting the Original Width Detecting Volume (VR1)

1) Prepare one sheet of A4 or LTR paper.
2) Remove the machine's cover, and set the DIP switch (DSW1) on the DADF controller PCB as shown in the figure. (Note that different settings are used for different paper sizes.)



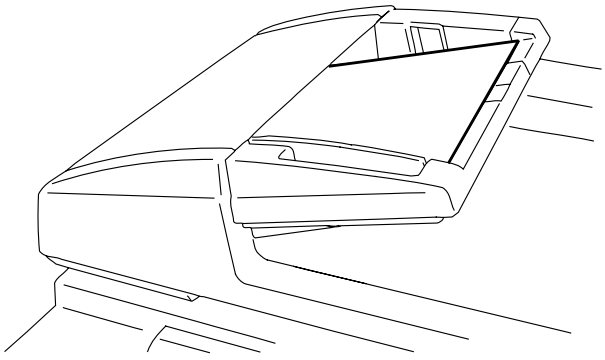
A4



LTR

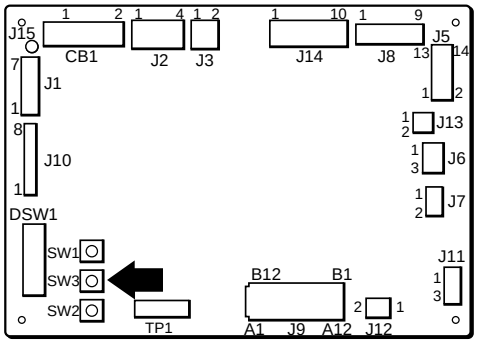
F05-102-04

3) Place copy paper in A4/LTR orientation on the original tray, and adjust the side guide to suit the width of the paper.



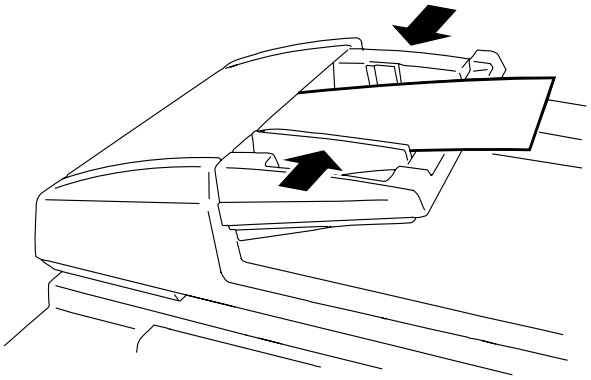
F05-102-05

4) Press the push switch (SW3) on the DADF controller PCB.
   - LED1 turns on when the DADF controller has read the data, and turns off immediately thereafter; then, LED2 will turn on.



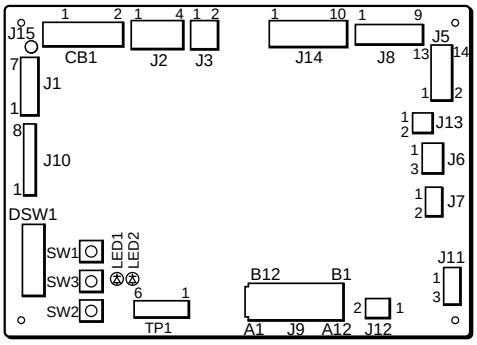
F05-102-06

5) After making sure that LED2 has turned on, place the copy paper in A4R/LTRR orientation on the copyboard glass, and adjust the side guide to suit the width of the paper.



F05-102-07

6) Press the push switch (SW3) on the DADF controller PCB once again.
   - When the adjustment ends, LED1 and LED2 on the DADF controller PCB turn on.
   - If adjustment fails, LED1 and LED2 on the DADF controller PCB flash.



F05-102-08

7) Shift all bits of the DIP switch (DSW1) on the DADF controller PCB back to their initial positions.

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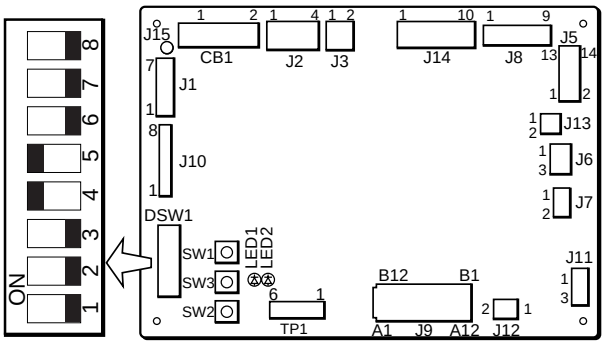
1.2.4 Pickup Operation Initial Settings

1) Remove the machine's cover, and shift bits 4 and 5 of the DIP switch (DSW1) on the DADF controller PCB to ON.



F05-102-09

2) Press the push switch (SW3) once.
3) Press the push switch (SW2) five times. (The pickup assembly operates.)
4) Press the push switch (SW3) once.
5) Shift the bits of the DIP switch (DSW1) on the DADF controller PCB back to their initial positions.

2 Troubleshooting

2.1 Troubleshooting Procedure

2.1.1 E400/E712 Indicator

	1) Turn off and on the power switch. Is the problem corrected? YES: End. (Check the wiring between the host copier's DC controller and the DADF controller PCB.)
Wiring	**2) Set the meter to the 200 VDC range, and connect the + probe to J2-6 and the - probe to J2-4 of the DADF controller PCB. Is the voltage about 24 V?** NO: Check the wiring for the power supplied by the host copier.
DADF controller PCB	**3) Try replacing the DADF controller PCB. Is the problem corrected?** YES: End. NO: Replace the host copier's DC controller PCB.

2.1.2 E401 Indicator

Pickup roller sensor (S5)	**1) Set the meter to the 20 VDC range, and connect the + probe to J5-1 and the - probe to J5-2 of the DADF controller PCB. Turn the flag (light-blocking plate) mounted on the pickup roller shaft by hand. Does the voltage change to about 5 V when the flag is over the sensor and about 0.15 V otherwise?** NO: Check the wiring from the pickup roller sensor (S5) to the DADF controller PCB; if normal, replace the pickup roller sensor (S5).
Pickup motor (M1)	**2) Set the meter to the 200 VDC range, and connect the + probe to J12-1 and the - probe to J12-2 of the DADF controller PCB. Does the index of the meterindicate about 22 V in response to a press on the Start key?** YES: Check the wiring from the pickup motor (M1) to the DADF controller PCB; if normal, replace the pickup motor (M1). NO: Replace the DADF controller PCB.

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2.1.3 E402 Indicator

Belt motor clock sensor (S10)

1) Set the meter to the 200 VDC range, and connect the + probe to J9-B4 on the DADF controller PCB and the - probe to J9-B3. Turn the clock disc slowly by hand. Does the reading alternate between 5 and 0 V?

NO: Check the wiring from the belt motor clock sensor circuit (S10) to the DADF controller PCB; if normal, replace the belt motor clock sensor (S10).

Belt motor (M3)

2) Set the meter to the 200 VDC range, and connect the + probe to J7-1 and the - probe to J7-2 of the DADF controller PCB. Does the reading of the meter change to 23 V in response to a press on the Start key?

YES: Check the wiring from the belt motor (M3) to the DADF controller PCB; if normal, replace the belt motor (M3).

NO: Replace the DADF controller PCB.

2.1.4 E403 Indicator

Feed motor clock sensor (S9)

1) Set the meter to the 20 VDC range, and connect the + probe to J9-A11 and the - probe to J9-A10 of the DADF controller PCB. Turn the clock disc slowly by hand. Does the reading alternate between 5 and 0 V?

NO: Check the wiring from the feeding motor clock sensor (S9) to the DADF controller PCB; if normal, replace the feed motor clock sensor (S9).

Feed motor (M2)

2) Set the meter to the 200 VDC range, and connect the + probe to J11-1 of the DADF controller PCB and the - probe to J11-2. Does the reading change to 23 V in response to a press on the Start key?

YES: Check the wiring from the feed motor (M2) to the DADF controller PCB; if normal, replace the feed motor (M2).

NO: Replace the DADF controller PCB.

2.1.5 E411 Indicator

Original tray paper sensor (S1), Registration sensor (S3)

1) Connect the probes of the digital multimeter to the following connectors on the DADF controller PCB. Is the reading 2.3 V or less when nothing blocks the sensor?

YES: Go to step 2.

NO: Replace the DADF controller PCB.

	(+)	(-)
Original tray sensor (S1)	J5-7	J5-8
Registration sensor (S3)	J9-20	J9-21

S1,S3

2) Is the light-receiving segment of each sensor soiled with paper lint or the like?

YES: Clean the light-receiving segment of the sensor with a cotton swab, and go to step 3.

LED1, LED2 (for sensor)

3) Connect the probes of the digital multimeter to the following connectors of the DADF controller PCB. Is the reading about 0.6 to 1.1 V?

NO: Check the wiring from the LED to the DADF controller PCB; if normal, replace the LED.

	(+)	(-)
LED1	J5-7	J5-8
LED2	J9-20	J9-21

Sensor (output level)

4) After steps 2 and 3, check the output by performing the instructions in step 1. Is the reading of the digital multimeter 1.2 V or less?

NO: Adjust the position of the sensor.

Sensor

5) Is the problem corrected after step 4?

YES: End.

NO: Replace the sensor.

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2.1.6 E712 Indicator

1) Turn on and off the power switch. Is the problem corrected?

YES: End. (Check the wiring from the host copier's reader controller PCB and the DADF controller PCB.)

Wring

2) Set the meter to the 200 VDC, and connect the probes to the following connectors. Is the voltage about 24 V?

NO: Check the wiring used to supply power from the host copier.

	+probe	-probe
1	J2-1	J2-2
2	J1-6	

DADF controller PCB

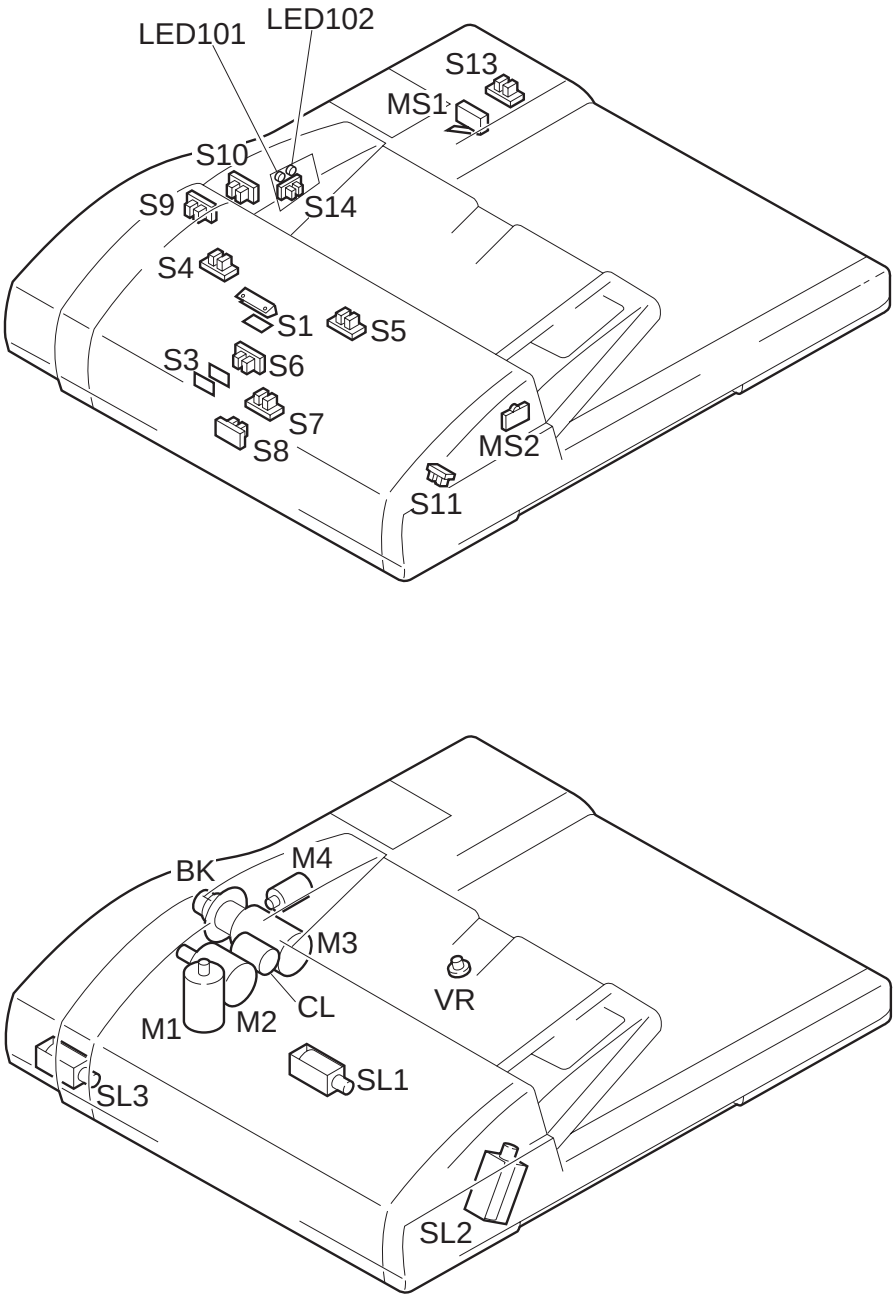
3) Try replacing the DADF controller PCB. Is the problem corrected?

YES: End.

NO: Replace the host copier's reader controller PCB.

3 Arrangement of Electrical Parts

3.1 Motors, Solenoids, and Sensors



F05-301-01

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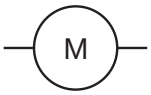
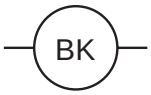
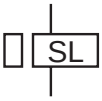
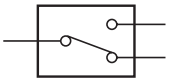
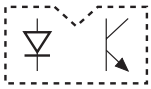
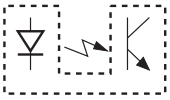
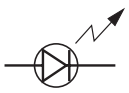
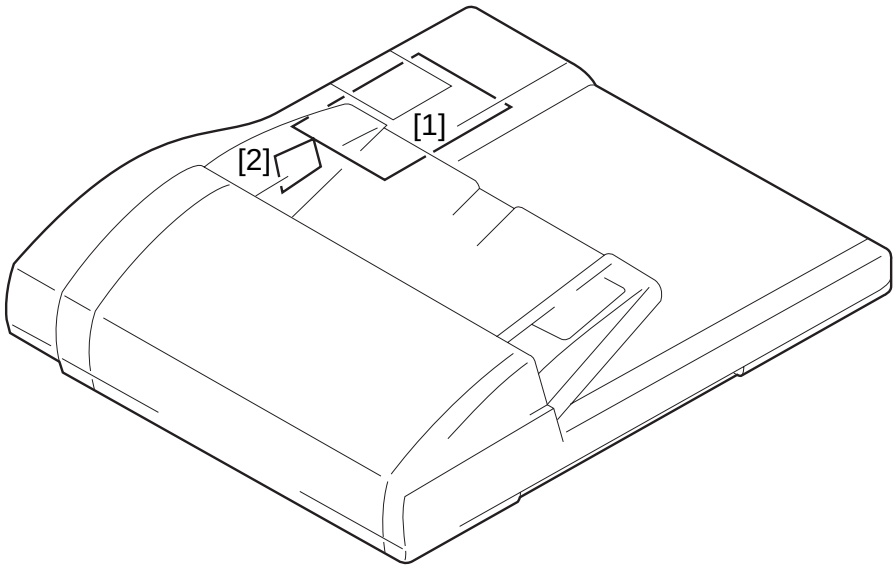
Symbol	Name	Notation	Description
	Motor	M1	Pickup motor
		M2	Feed motor
		M3	Belt motor
		M4	Recirculation motor
	Clutch	CL	Clutch
	Brake	BK	Belt motor brake
	Solenoid	SL1	Stopper plate solenoid
		SL2	Paper retaining solenoid
		SL3	Paper deflecting plate solenoid
	Variable resistor	VR	Original width detecting volume
	Microswitch	MS1	DADF open/close switch
		MS2	Upper cover switch
	Phototransistor	S1	Original try paper sensor
		S3	Registration sensor
	Photointerrupter	S4	Upper cover sensor
		S5	Pickup roller sensor
		S6	Delivery sensor
		S7	Pickup sensor
		S8	Reversal sensor
		S9	Feed motor clock sensor
		S10	Belt motor clock sensor
		S11	Registration roller lock sensor
		S13	Delivery motor clock sensor
		S14	Recirculation sensor
	LED	LED101	Original Set indicator
		LED102	Original Set indicator

T05-301-01

3.2 PCBs



F05-302-01

Ref.	Name	Description
[1]	DADF controller PCB	DADF control
[2]	Indicator PCB	Original Set indicator

T05-302-01

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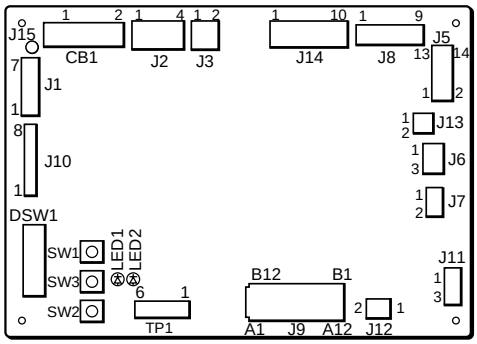
4 Variable Resistors (VR), Light-Emitting Diodes, and Check Pins by PCB

Of the variable resistors (VR), light-emitting diodes, and check pins used in the machine, those needed in the field are discussed.

Do not touch the VRs or check pins not found herein; they are for the factory, and require special tools and high accuracy.

4.1 DADF Controller PCB

1. Some LEDs have leakage current, and emit dim light even when off; this is a normal condition, and must be kept in mind.
2. VR that may be used in the field .....
   VR that must not be used in the field .....



F05-401-01

LED	Description
LED1	Use it to check the output of the original tray paper sensor.
LED2	Use it to check the output of the registration sensor.

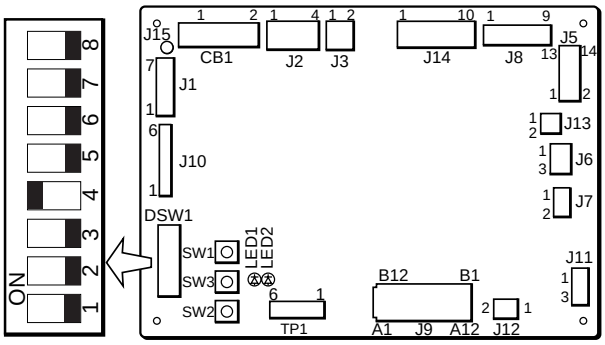
T05-401-01
LEDs on DADF Controller PCB

Test pin	Item to check
TP1-1	Output of original sensor
-2	Output of registration sensor
-3	For factory
-4	For factory
-5	+5V
-6	GND

T05-401-02
Test Pins on the DADF Controller PCB

Checking the Output of the Original Tray Paper Sensor/Registration Sensor
If you have replaced the DADF controller PCB or the original tray paper sensor/registration sensor, you must make sure that the output of each sensor is correct; this is required because the light-emitting segment and the light-receiving segment of each sensor are not constructed as one:

1) Turn off the machine's power switch.
2) Shift bit 4 of the DIP switch (DSW1) on the DADF controller PCB to ON.



F05-401-02

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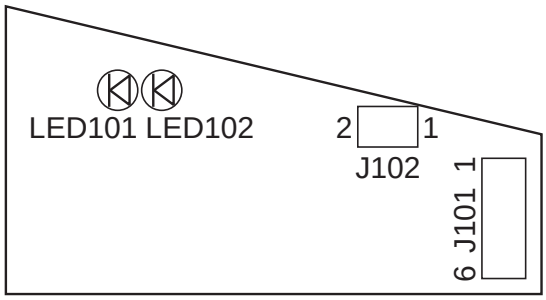
3) Turn on the host copier's power switch.
4) Without paper on the original tray, press the push switch (SW3) on the DADF controller PCB once.
5) Check to make sure that LED1 and LED2 of the DADF controller PCB have tuned on and the voltage of TP1-1 is 1.1 ±0.1 V and that of TP1-2 is 4.1 ±0.2 V.
   If the voltage of either check pins is not as indicated, the light-emitting segment and the light-receiving segment of the sensor in question are likely to be misaligned. Check the position of that sensor.

4.2 Indicator PCB



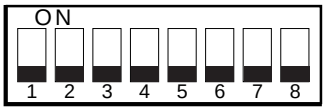
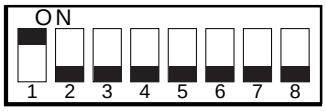
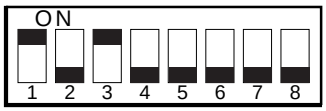
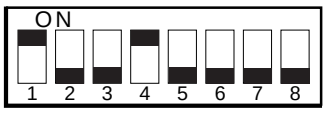
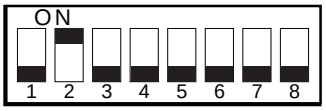
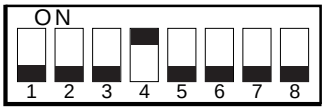
F05-402-01

LED	Description
LED101	Original Set indicator
LED102	Original Set indicator

T05-402-01

4.3 Functions of the DIP Switch

The DIP switch (DSW1) on the DADF controller PC have the following functions:

Item	DSW1 settings	Description
Normal operation		Setting all bits to OFF selects normal operation mode.
Pickup/delivery step operation		Each press on the push switch (SW3) of the DADF controller PCB repeats pickup/ delivery operation.
Pickup/reversal/ delivery step operation		Each press on the push switch on the DADF controller PCB repeats pickup/reversal/ delivery operation.
Original stop position adjustment		In response to a press on the push switch (SW3) on the DADF controller PCB, an original will be picked up and placed on the copyboard glass. Thereafter, the stop position may be adjusted by pressing the push switch (SW1, SW2). Lastly, a press on the push switch (SW3) will store the new setting.
Continuous pickup/ delivery		In response to each press on the push switch (SW3) of the DADF controller PCB after placing three or more sheets of copy paper on the original tray, pickup and delivery operations will be repeated.
Sensor level check		Each press on the push switch (SW3) of the DADF controller PCB causes the original tray paper sensor and the registration sensor to be in level check mode.

T05-403-01

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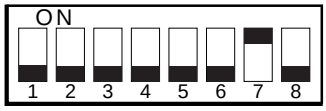
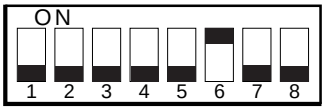
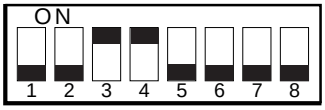
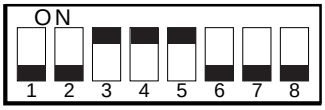
<table>
<tr><th>Item</th><th>DSW1 settings</th><th>Description</th></tr>
<tr><td>Non-default original size</td><td> 
</td><td>To use any of the following originals, shift bit 7 to ON:
<table>
<tr><th>DADF configuration</th><th>Original in feed direction (mm)</th></tr>
<tr><td>A/B DADF</td><td>220 to 250</td></tr>
<tr><td>Inch DADF</td><td>220 to 260</td></tr>
</table></td></tr>
<tr><td>Separation belt/feed roller cleaning</td><td> 
</td><td>A press on the push switch (SW3) of the DADF controller PCB causes the pickup motor to rotate, thereby cleaning the separation belt and the feed roller.
To stop the operation, press the push switch (SW3) once again.</td></tr>
<tr><td>Original size horizontal direction detection adjustment</td><td> 

(adjustment using A4)
 

(adjustment using LTR)</td><td>Use it to store the position of the original tray inside guide for A4 or LTR.</td></tr>
</table>

T05-403-02

5 Self Diagnosis

5.1 DADF Self Diagnosis

The microprocessor of the machine's DADF controller PCB is equipped with a mechanism to automatically check its condition; it executes diagnosis as needed and, upon detection of a fault, it indicates the fact in its host copier's control panel.

The following table shows each code and its nature with timing of detection.

E400	
Cause	• The exchange of data with the host copier has a fault.
Timing	• The communication is monitored at all times, and this error is identified when it is disrupted for 5 sec or more.
E401	
Cause	• The pickup motor (M1) fails to rotate. • The pickup roller sensor (S5) is faulty.
Timing	• A flag is mounted to the spindle of the pickup motor (M1), and the rotation of the motor is monitored in reference to its blocking the pickup roller sensor (S5). This error is identified when the sensor does not turn on and off twice or more within 1 sec.
E402	
Cause	• The belt motor (M2) fails to rotate. • The belt motor clock sensor (S10) is faulty.
Timing	• This error is identified when the number of belt motor clock pulses is below a specific value for 200 msec.
E403	
Cause	• The pickup motor (M2) fails to rotate. • The feed motor clock sensor (S9) is faulty.
Timing	• The number of feed motor clock pulses is below a specific value for 200 msec.
E411	
Cause	• The original tray paper sensor (S1) is faulty. • The registration sensor (S3) is faulty.
Timing	• The output of the sensor is 2.3 V or more in the absence of paper.

1. If the self diagnostic mechanism has turned on, the machine may be reset by turning off its host copier's power switch.
2. If the machine is out of order, copies may be made by opening the machine and placing originals on its host copier's copyboard.

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APPENDIX

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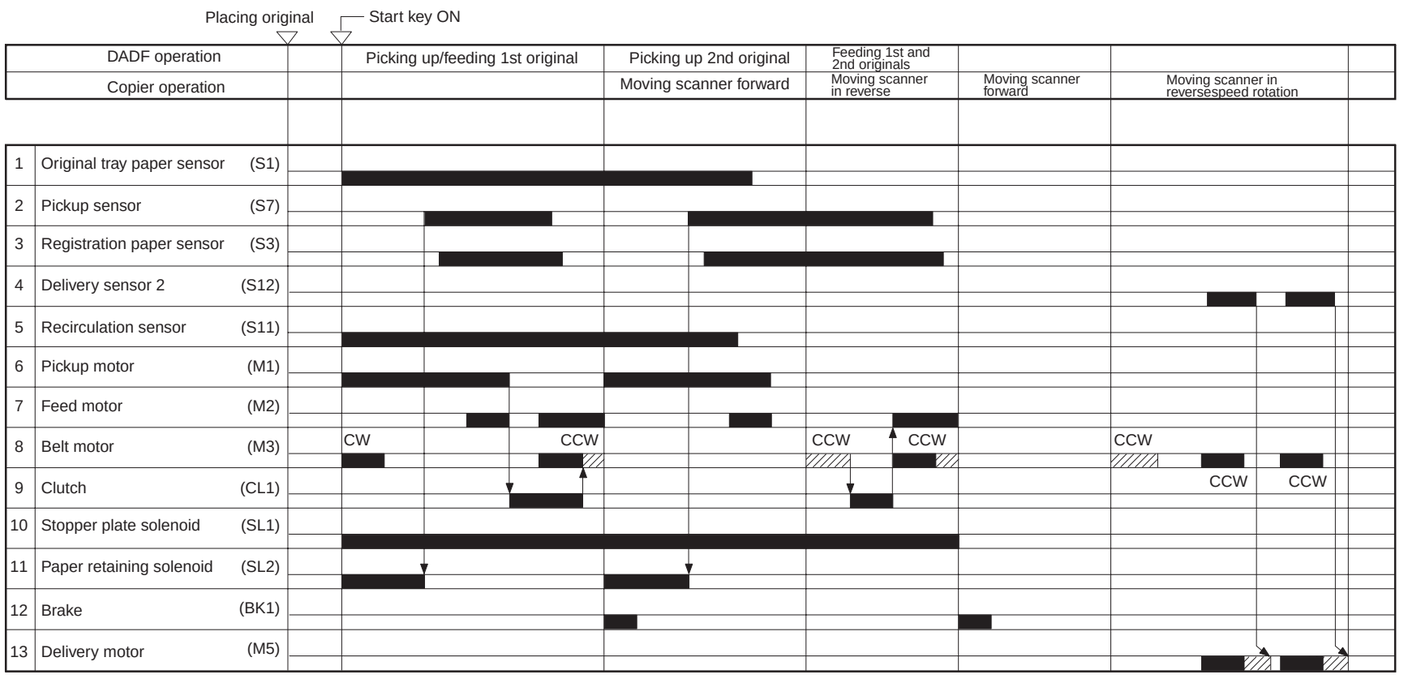
1 General Timing Chart

1.1 Top Pickup Mode, A4, 2 Originals (single-sided original to single-sided copy)



: Motor low-speed rotation

CW: CW (copy mode delivery direction) rotation

CCW: CCW (pickup direction) rotation

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2 List of Signals/Abbreviations

The following list shows the names of signals and abbreviations used in this document and circuit diagrams.

The abbreviations shown in brackets represent electric signals, but they are analog signals, which cannot be indicated in terms of ‘1’ and ‘0’. Others are digital signals, whose state can be expressed in terms of ‘1’ or ‘0’.

BDIR	BELT MOTOR ROTATION Command
BK	BRAKE DRIVE Command
BMCLK	BELT MOTOR CLOCK PULSE Signal
BMON	BELT MOTOR DRIVE Command
BMPWM	BELT MOTOR SPEED CONTROL Command
CL	CLUTCH DRIVE Command
CNCT	CONNECT Signal
EPMS	DOCUMENT EMPUTY1 Signal
FLPSL1	DEFLECTOR SOLENOID DRIVE Command
WIDTH	DOCUMENT SIZE DETECTION Signal
ORGLED	DOCUMENT SENSE DRIVE Command
FMCLK	FEED MOTOR CLOCK PULSE Signal
FMPWM	FEED MOTOR DRIVE Command
RSS	LAST DOCUMENT DETECTION Signal
SPRS	PAPER DETECTION Signal 1
EJTS1	PAPER DETECTION Signal 2
ENTS	PAPER DETECTION Signal 3
EJTS 2	PAPER DETECTION Signal 4
TURNS	PAPER DETECTION Signal 5
DCTS	PICK-UP ROLER START POSITION Signal
RFC	RF CLOSED Signal
RSDRV	RECYCLE MOTOR DRIVE Command
RSIN	RF SERIAL INPUT Signal
RSOUT	RF SERIAL OUTPUT Signal
SDIR	PICK-UP MOTOR ROTATION Command
SMON	PICK-UP MOTOR DRIVE Command
SMPWM	PICK-UP MOTOR SPEED CONTROL Command
STPSLD	STOPPER SOLENOID DRIVE Command
UPCC	UPPER COVER CLOSED Signal 1
CVRSW	UPPER COVER CLOSED Signal 2
WGTSL	WEIGHT SOLENOID DRIVE Command

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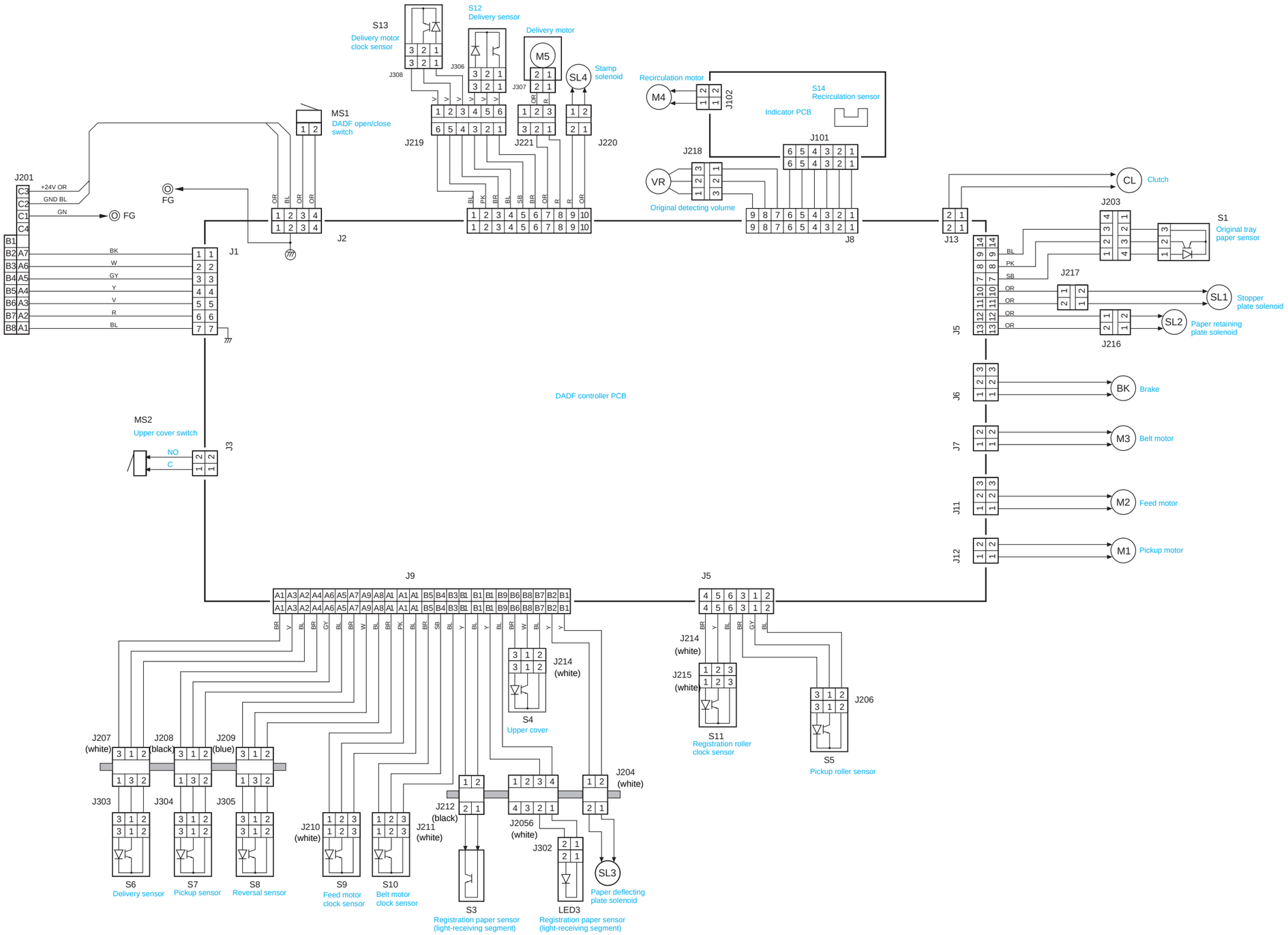
3 General Circuit Diagram



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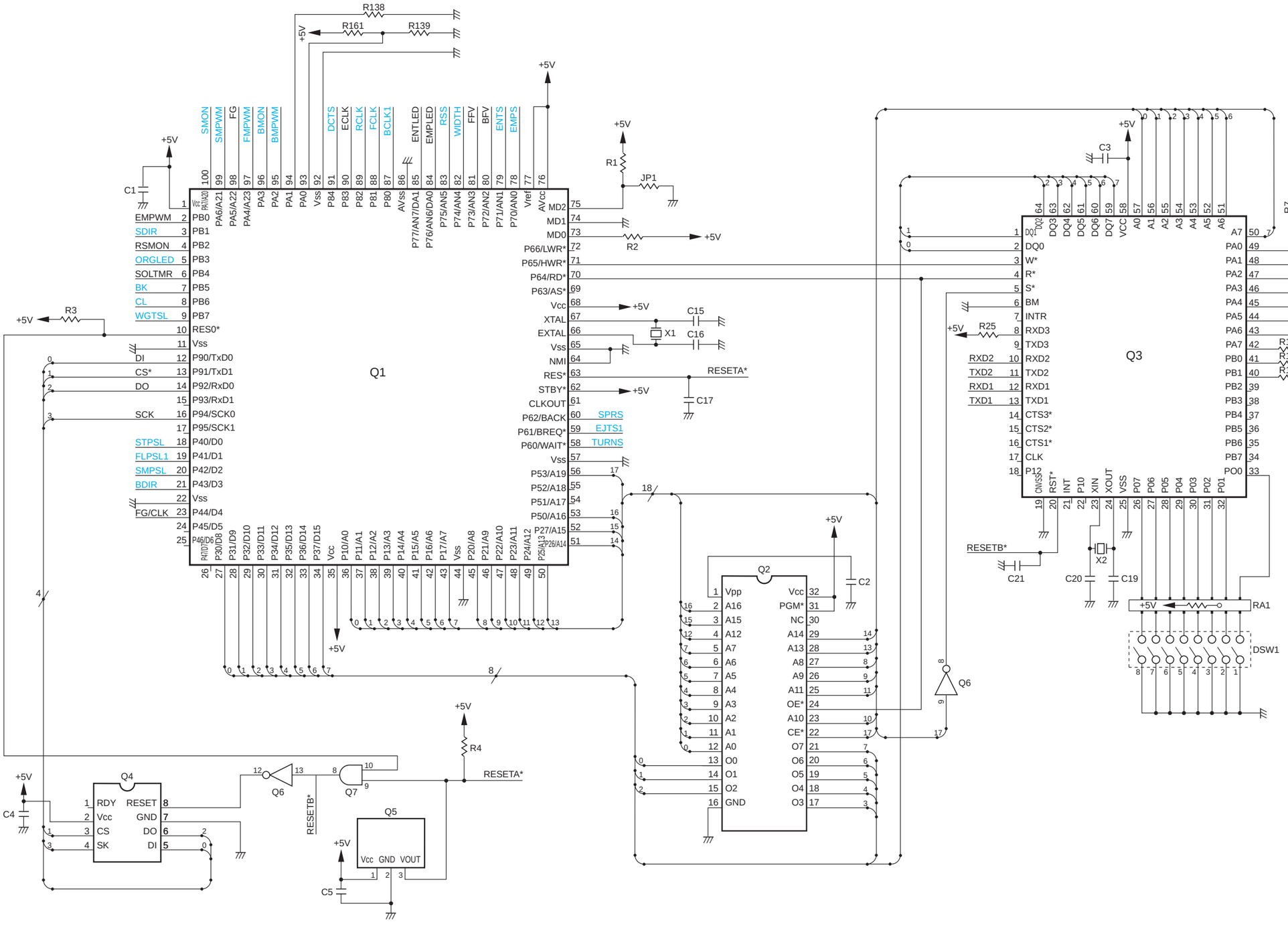
4 DADF Controller Circuit Diagram

4.1 DADF Controller Circuit Diagram (1/6)



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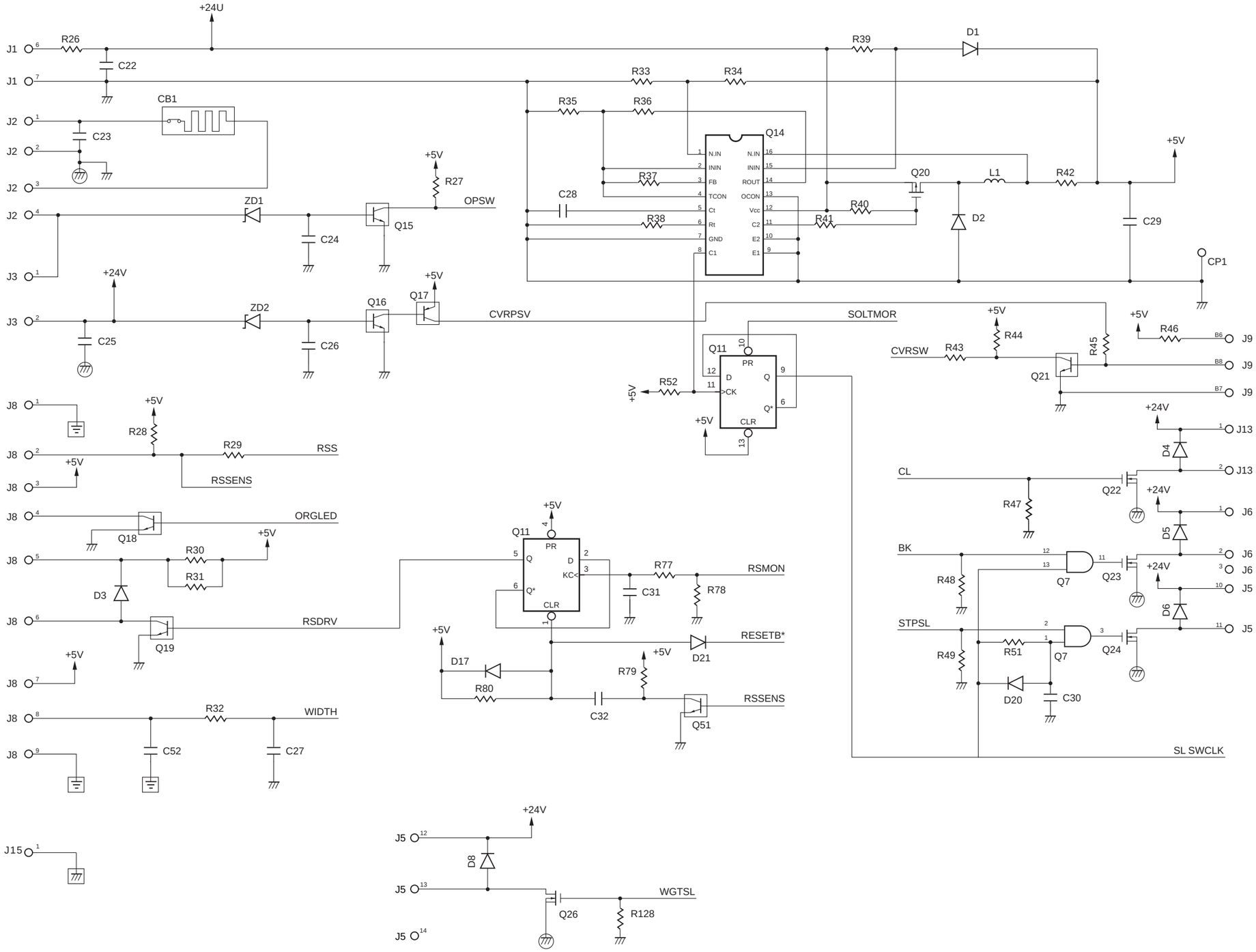
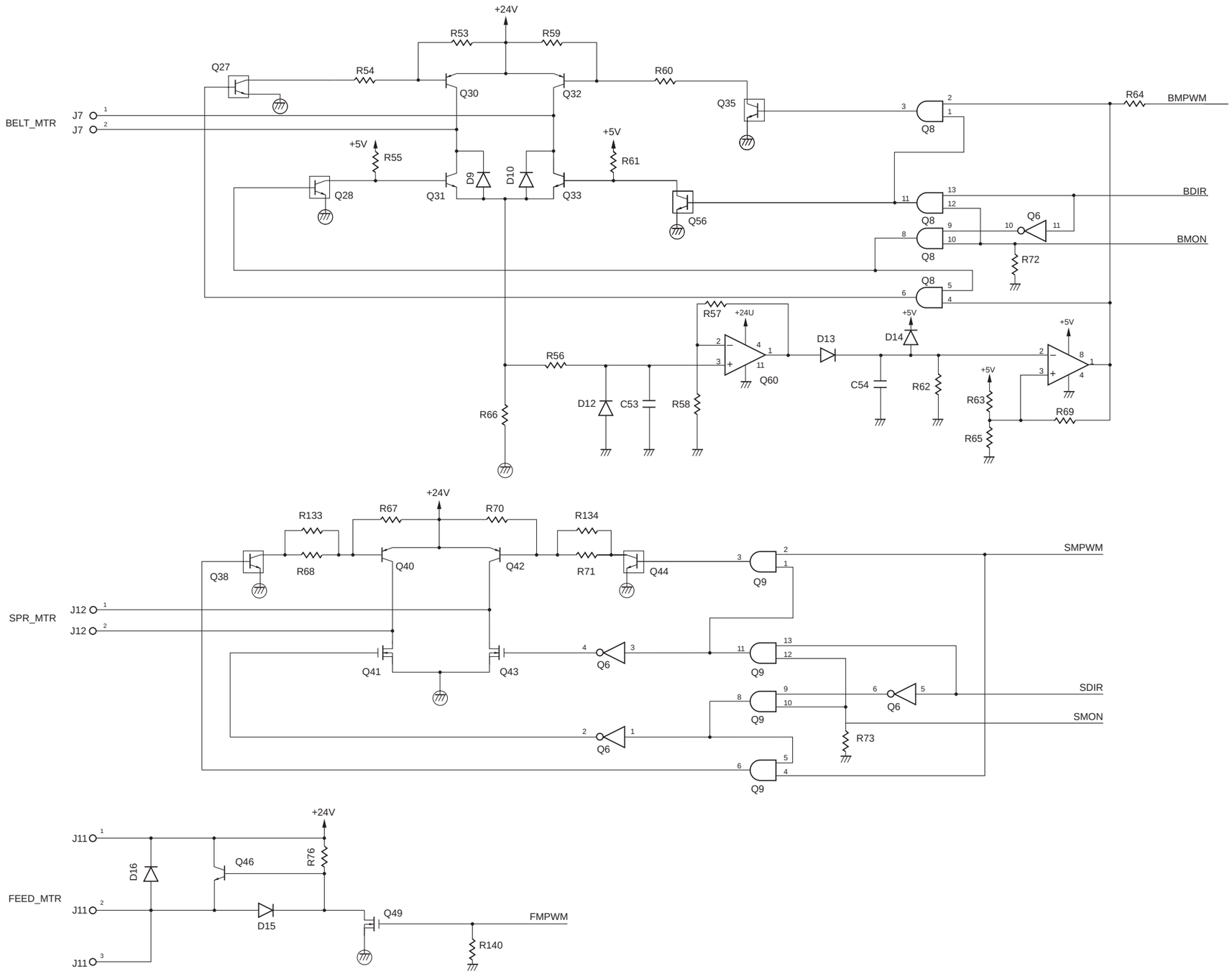
4.2 DADF Controller Circuit Diagram (2/6)



4.3 DADF Controller Circuit Diagram (3/6)



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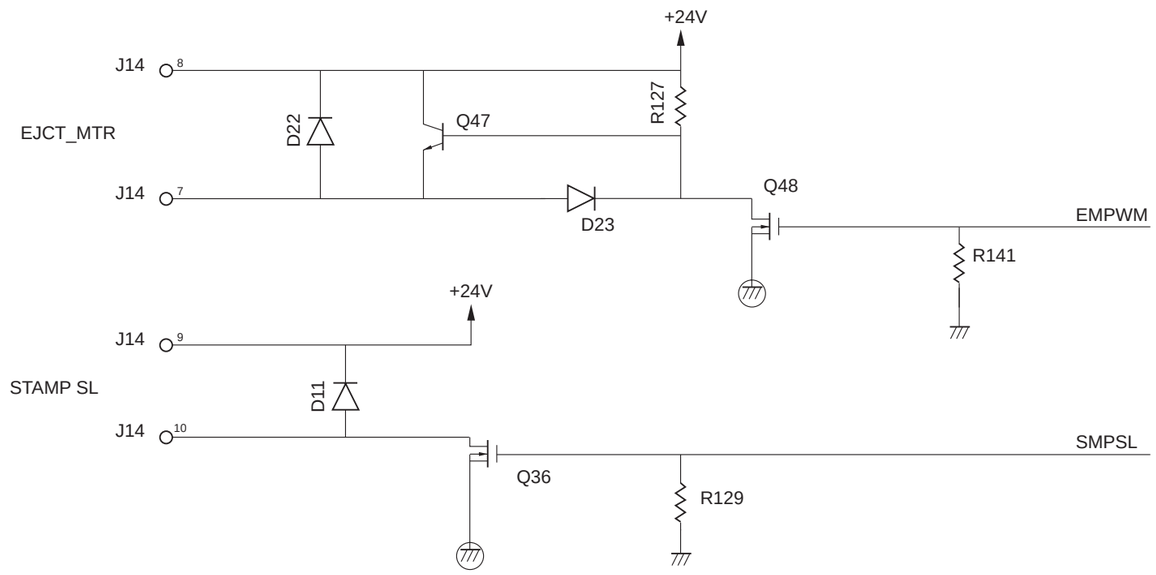
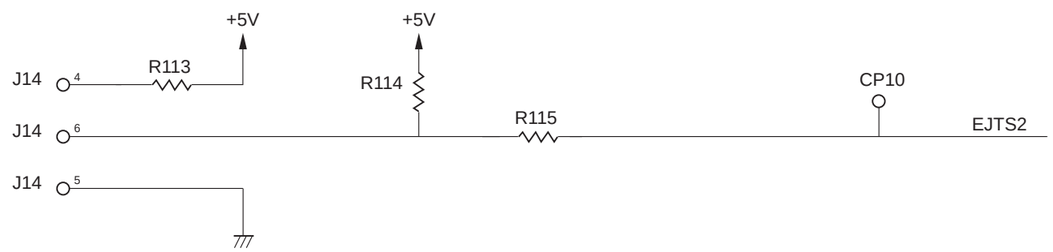
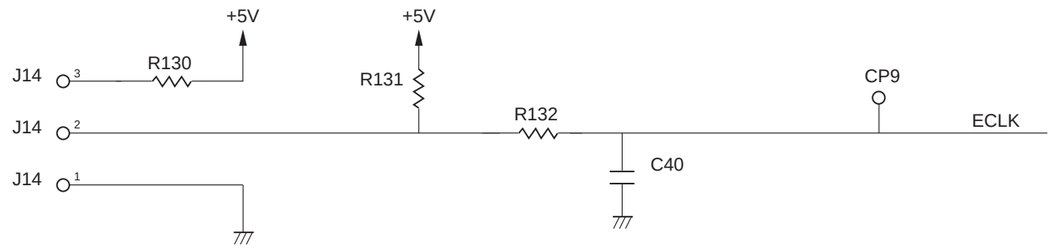
4.4 DADF Controller Circuit Diagram (4/6)







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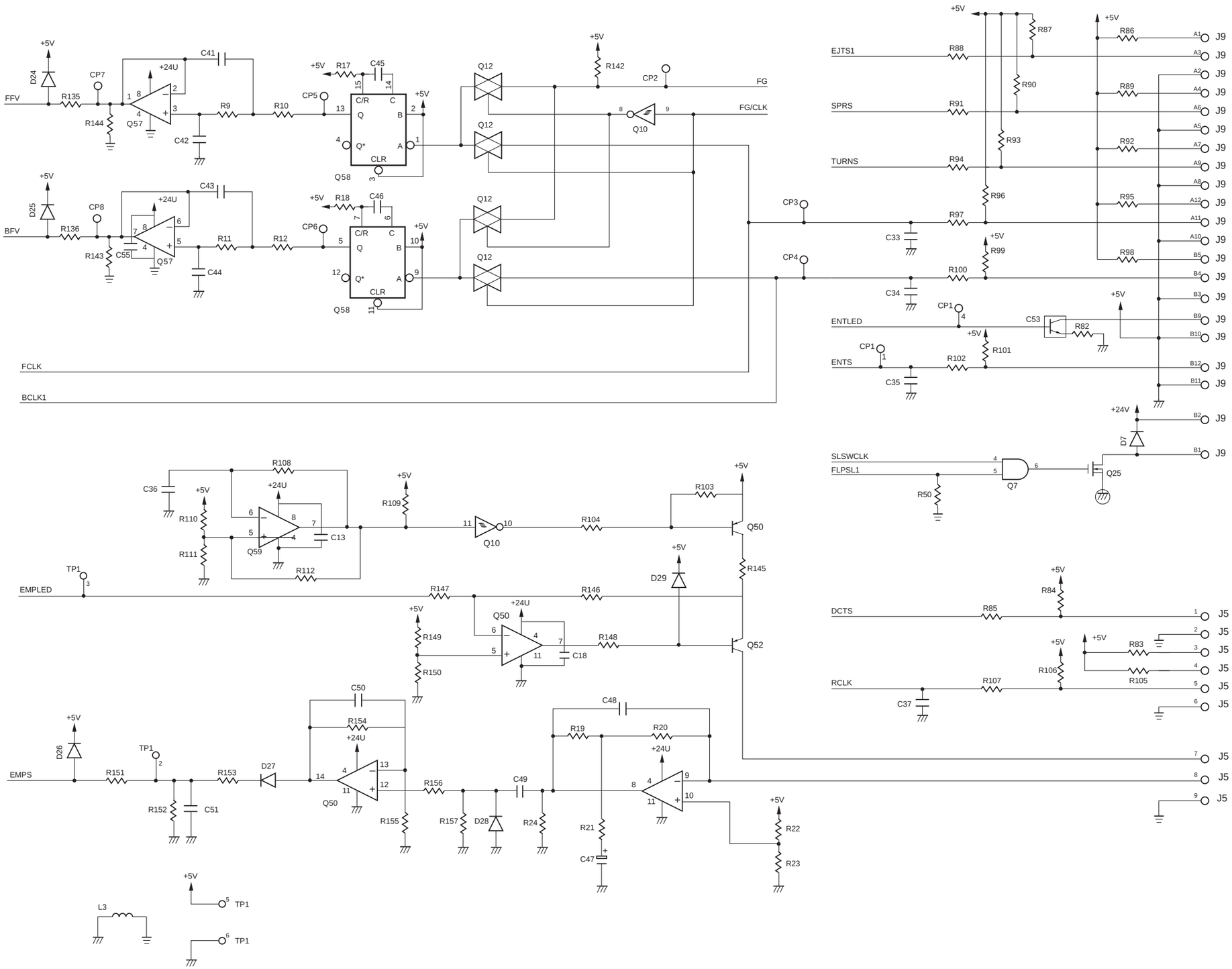
4.5 DADF Controller Circuit Diagram (5/6)



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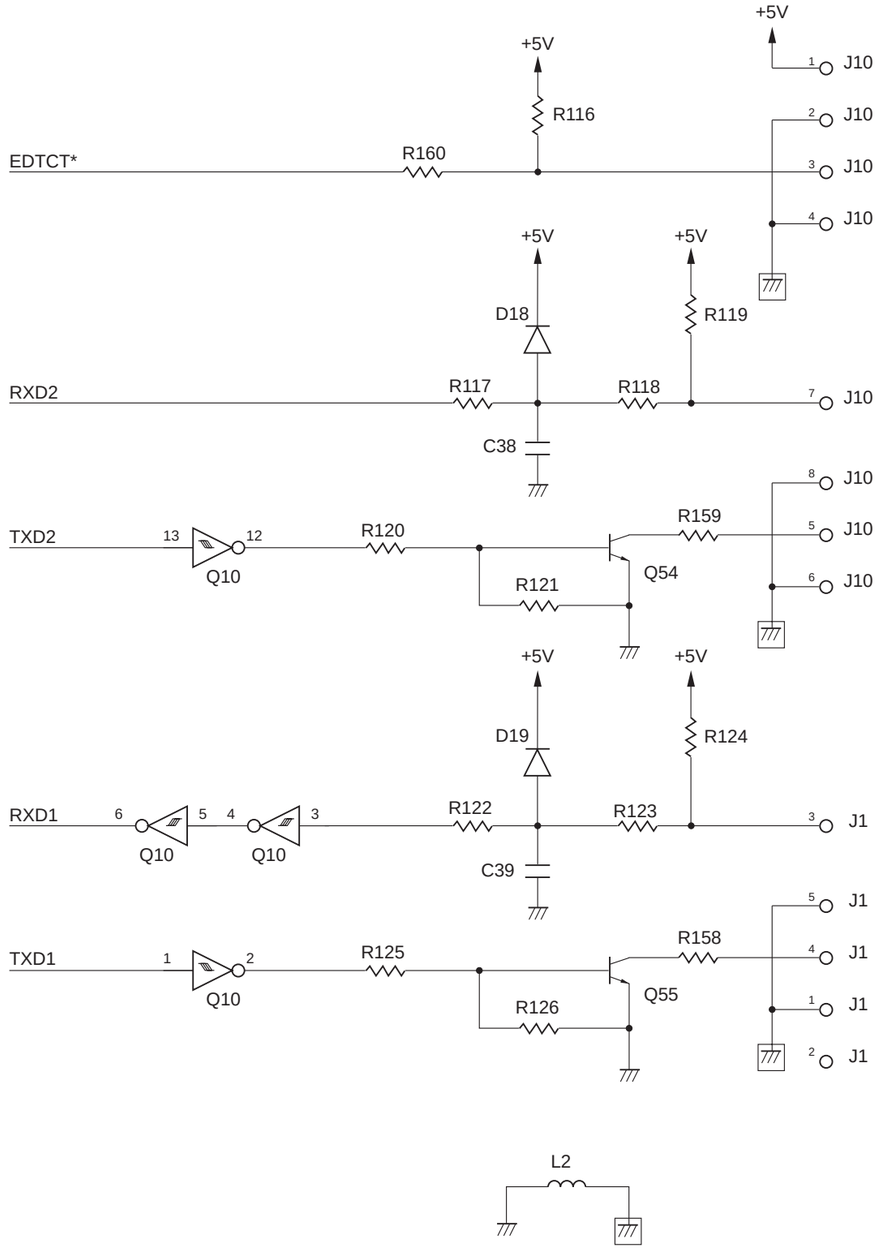
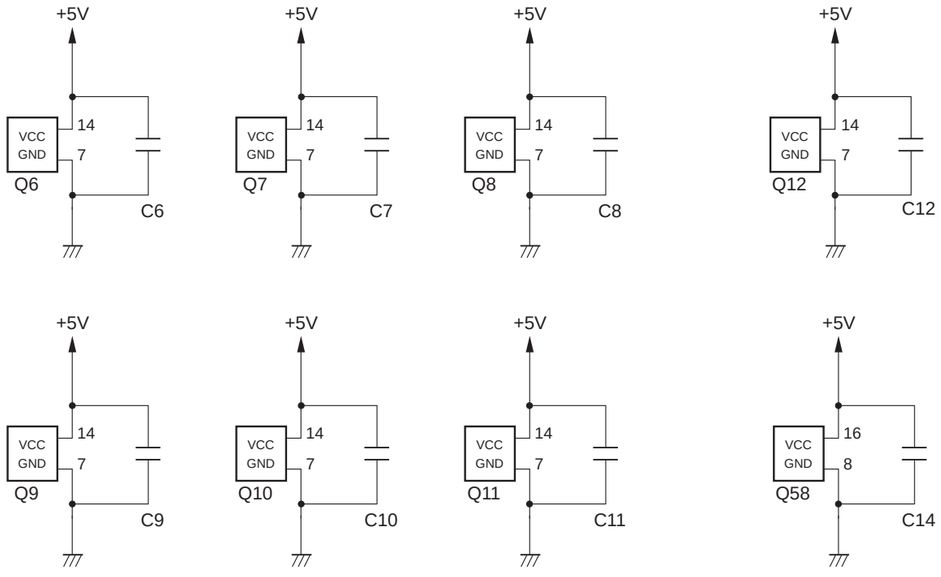
4.6 DADF Controller Circuit Diagram (6/6)





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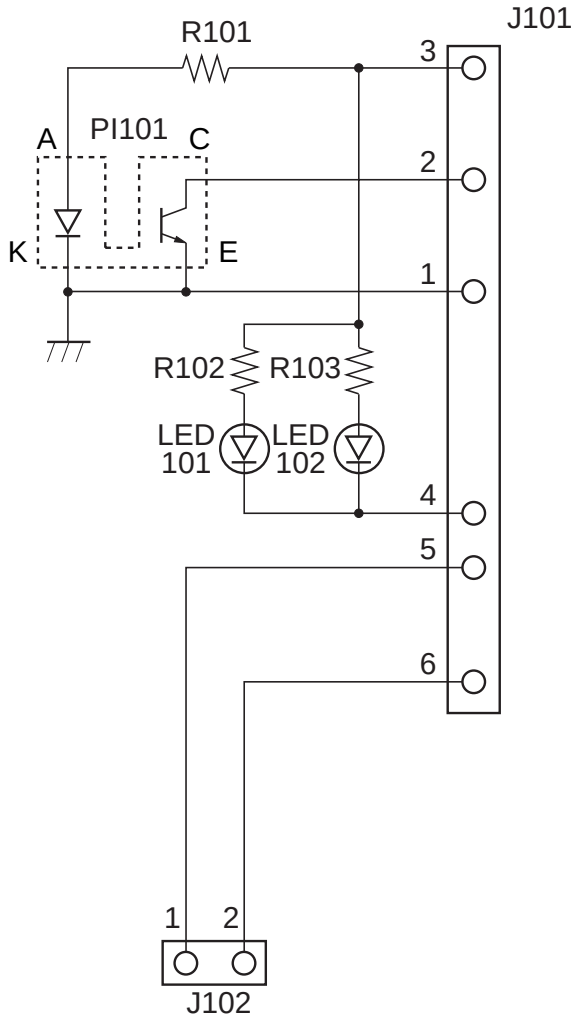
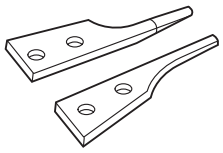
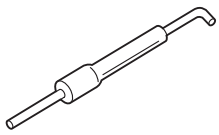
5 Indicator PCB Circuit Diagram



6 List of Special Tools

In addition to the standard tools set, the following special tools will be needed to service the machine:

No.	Tool name	Tool No.	Shape	Rank	Uses
1	Stop ring/pliers tip replacement	CK-0246		B	Used for removing a stop ring; 4 to 9 mm.
2	Tension gauge	CK-0058		B	Used for adjusting the separation belt pressure/timing belt tension; 0 to 600 g.

T0A-600-01

REF.

Rank
A: Each service person is expected to carry one.
B: Each group of five service persons is expected to carry one.
C: Each workshop is expected to carry one.

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7 List of Solvents/Lubricants

No.	Name	Uses	Composition	Remarks
1	Alcohol	Cleaning: e.g., glass, plastic, rubber; external cover	Fluoride hydrocarbon, alcohol, surface activating agent, water	· Do not bring near fire. · Procure locally. · C1, IPA (isopropyl alcohol)
2	Lubricant	Lubricating	Silicone oil	· Tool No.: CK-0551 (20 g)
3	Cleaning tissue	Cleaning: e.g., feeding belt, copyboard cover, copyboard glass		· Cleaning tissue, Tool No.: TKN-0454

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